

## SERVICE MANUAL

## FE-1 CHASSIS

<i>MODEL</i>	<i>COMMANDER</i>	<i>DEST</i>	<i>CHASSIS NO.</i>	<i>MODEL</i>	<i>COMMANDER</i>	<i>DEST</i>	<i>CHASSIS NO.</i>
<b>KV-29X5A</b>	RM-883	Italian	SCC-Q06A-A	<b>KV-29X5K</b>	RM-883	OIRT	SCC-Q03A-A
<b>KV-29X5B</b>	RM-883	French	SCC-Q02A-A	<b>KV-29X5L</b>	RM-883	Irish	SCC-Q07A-A
<b>KV-29X5D</b>	RM-883	AEP	SCC-Q04A-A	<b>KV-29X5R</b>	RM-883	OIRT	SCC-Q03B-A
<b>KV-29X5E</b>	RM-883	Spanish	SCC-Q05A-A	<b>KV-29X5U</b>	RM-883	UK	SCC-Q01A-A



TRINITRON® COLOR TV  
**SONY®**



# KV-29X5





ITEM MODEL	Television System	Stereo System	Channel Coverage	Color System
Italian	B/G/H	GERMAN Stereo	ITALIA VHF : A-H2 (C) UHF : 21-69 PAL B/G/H VHF : E2-E12 UHF : E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10	PAL NTSC4.43, NTSC3.58 (VIDEO IN)
French	B/G/H, D/K, L, I	GERMAN/NICAM Stereo	L VHF : F02-F10 UHF : F21-F60 CABLE : B-Q B/G/H VHF : E2-E12 UHF : E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF : A-H2 (C) UHF : 21-69 I UHF : B21-B69	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)
AEP	B/G/H, D/K	GERMAN Stereo	PAL B/G/H VHF : E2-E12 UHF : E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF : A-H2 (C) UHF : 21-69 D/K VHF : R01-R12 UHF : R21-R69	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)
Spanish	B/G/H, D/K	GERMAN/NICAM Stereo	PAL B/G VHF : E2-E12 UHF : E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF : A-H2 (C) UHF : 21-69 D/K VHF : R01-R12 UHF : R21-R69	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)
OIRT	B/G/H, D/K	KV-29X5K GERMAN/NICAM Stereo  KV-29X5R GERMAN Stereo	B/G/H VHF : E2-E12 UHF : E21-E69 CABLE TV (1) : S1-S41 D/K VHF : R01-R12 UHF : R21-R69	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)
Irish	I	NICAM Stereo	VHF : A-H2 VHF : E02-E12 CABLE CHANNELS S1-S20 HYPERBAND S21-S46	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)
UK	I	NICAM Stereo	UHF : B21-B69	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)

MODEL	29X5A	29X5B	29X5D	29X5E	29X5K	29X5L	29X5R	29X5U
Power Consumption	100.1 W	108 W	108 W	108 W	108 W	158.5 W	108 W	158.5 W

## [PICTURE TUBE]




Super Trinitron  
Approx. 72cm (29 inches)  
(Approx. 68 cm picture measured diagonally)  
110 degree deflection

## [FRONT]

-  Video input - phono jack
-  Audio inputs - phono jacks
-  S Video input 4 pin DIN
-  Headphone jacks : stereo minijack

## Input/Output Terminals

### [REAR]

-  21-pin Euro connector (CENELEC standard).
- Inputs for Audio and Video signals.
- Inputs for RGB.
- Outputs of TV Video and Audio signals.
-  21-pin Euro connector.
- inputs for Audio and Video signals.
- inputs for S Video.
- outputs for Audio and Video signals (selectable).
-  Phono Jack
- Outputs for Audio Signals

Sound output 2 x 20W (Music Power)  
Power requirements 220 - 240V  
Dimensions Approx 676x557x525mm  
Weight Approx 43.5kg  
Supplied accessories RM-883 Remote Commander (1)  
IEC designated R6 battery (1)  
Other features NICAM\*, FASTEXT, TOPTXT  
\*(KV-29X5B/29X5E/29X5L/29X5U only)


### [RM-883]

Remote control system infrared control  
Power requirements 1.5V dc  
1 battery IEC designation R6 (size AA)  
Dimensions Approx 65x225x21mm (w/h/d)  
Weight Approx 157g (Not including battery)

**Design and specifications are subject to change without notice.**

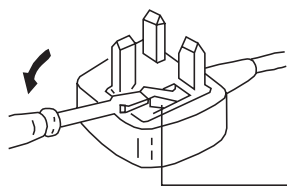
Model Name Item	KV-29X5A	KV-29X5B	KV-29X5D	KV-29X5E	KV-29X5K	KV-29X5L	KV-29X5R	KV-29X5U
Pal Comb	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
PIP	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
RGB Priority	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
Woofers Box	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Scart 1	ON	ON	ON	ON	ON	ON	ON	ON
Scart 2	ON	ON	ON	ON	ON	ON	ON	ON
Front in (3)	ON	ON	ON	ON	ON	ON	ON	ON
Scart 4	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Projector	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
AKB in 16:9 mode	ON	ON	ON	ON	ON	ON	ON	ON
Norm B/G	ON	ON	ON	ON	ON	OFF	ON	OFF
Norm I	OFF	OFF	OFF	OFF	OFF	ON	ON	OFF
Norm D/K	OFF	ON	ON	ON	ON	OFF	ON	OFF
Norm AUS	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Norm L	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
Norm SAT	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Norm M	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Teletext	ON	ON	ON	ON	ON	ON	ON	ON
Nicam Stereo	OFF	ON	OFF	ON	ON	ON	OFF	ON
Language Preset	Italian	French	German	Spanish	OIRT	English	OIRT	English

## WARNING (KV-29X5L / KV-29X5U only)

The flexible mains lead is supplied connected to a **B.S. 1363** fused plug having a fuse of **5 AMP** capacity. Should the fuse need to be replaced, use a **5 AMP FUSE** approved by **ASTA** to **BS 1362**, ie one that carries the  mark.

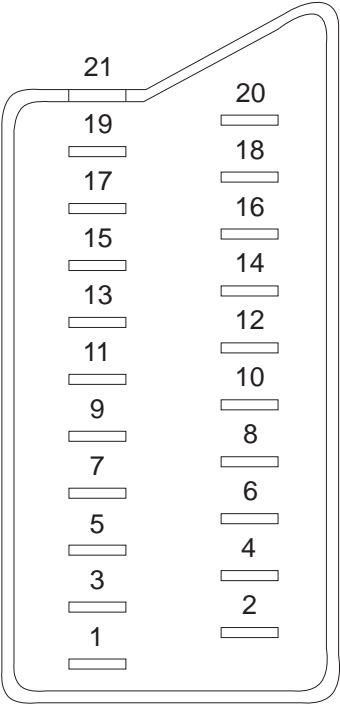
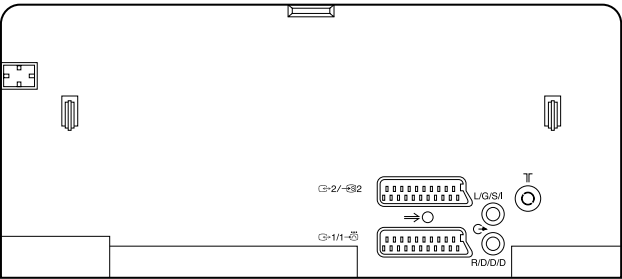
IF THE PLUG SUPPLIED WITH THIS APPLIANCE IS NOT SUITABLE FOR THE OUTLET SOCKETS IN YOUR HOME, IT SHOULD BE CUT OFF AND AN APPROPRIATE PLUG FITTED. THE PLUG SEVERED FROM THE MAINS LEAD MUST BE DESTROYED AS A PLUG WITH BARED WIRES IS DANGEROUS IF ENGAGED IN A LIVE OUTLET SOCKET.

When an alternative type of plug is used it should be fitted with a **5 AMP FUSE**, otherwise the circuit should be protected by a **5 AMP FUSE** at the distribution board.



How to replace the fuse.  
Open the fuse compartment with a screwdriver blade and replace the fuse.

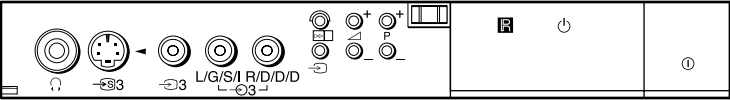
21 pin connector ( 1, 2 / S 2 )



Pin No	1	2	4	Signal	Signal level
1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Audio output B (right)	Standard level : 0.5V rms Output impedance : Less than 1kohm*
2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Audio output B (right)	Standard level : 0.5V rms Output impedance : More than 10kohm*
3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Audio output A (left)	Standard level : 0.5V rms Output impedance : Less than 1kohm*
4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Ground (audio)	
5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Ground (blue)	
6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Audio input A (left)	Standard level : 0.5V rms Output impedance : More than 10kohm*
7	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	Blue input	0.7 +/- 3dB, 75 ohms positive
8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Function select (AV control)	High state (9.5-12V) : Part mode Low state (0-2V) : TV mode Input impedance : More than 10K ohms Input capacitance : Less than 2nF
9	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Ground (green)	
10	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Open	
11	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	Green	Green signal : 0.7 +/- 3dB, 75 ohms, positive
12	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Open	
13	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Ground (red)	
14	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Ground (blanking)	
15	<input type="radio"/>	-	-	Red input	0.7 +/- 3dB, 75 ohms, positive
	-	<input type="radio"/>	<input type="radio"/>	(S signal Chroma input)	0.3 +/- 3dB, 75 ohms, positive
16	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	Blanking input (Ys signal)	High state (1-3V) Low state (0-0.4V) Input impedance : 75 ohms
17	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Ground (video output)	
18	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Ground (video input)	
19	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Video output	1V +/- 3dB, 75ohms, positive sync 0.3V (-3+10dB)
20	<input type="radio"/>	-	-	Video input	1V +/- 3dB, 75ohms, positive sync 0.3V (-3+10dB)
	-	<input type="radio"/>	<input type="radio"/>	Video input Y (S signal)	1V +/- 3dB, 75ohms, positive sync 0.3V (-3+10dB)
21	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Common ground (plug, shield)	

☐ Connected      ☒ Not Connected (open)      \* at 20Hz - 20kHz

Pin No	Signal	Signal level
1	Ground	
2	Ground	
3	Y (S signal) input	1V+/- 3dB 75 ohm, positive Sync 0.3V -3/+10dB
4	C (S signal) input	0.3V+/- 3dB 75 ohm, positive Sync



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## CAUTION

**SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR THE CARBON PAINTED ON THE CRT, AFTER REMOVAL OF THE ANODE CAP**

## WARNING !!

AN ISOLATING TRANSFORMER SHOULD BE USED DURING ANY SERVICE WORK TO AVOID POSSIBLE SHOCK HAZARD DUE TO LIVE CHASSIS. THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE POWER LINE.

## SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARKED  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.


## ATTENTION

**APRES AVOIR DECONNECTE LE CAP DE L'ANODE, COURT-CIRCUITER L'ANODE DU TUBE CATHODIQUE ET CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE TUBE CATHODIQUE OU AU BLINDAGE DU TUBE CATHODIQUE.**

## ATTENTION !!

AFIN D'EVITER TOUT RISQUE D'ELECTROCUTION PROVENANT D'UN CHÂSSIS SOUS TENTION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÉ LORS DE TOUT DÉPANNAGE. LE CHÂSSIS DE CE RÉCEPTEUR EST DIRECTMENT RACCORDÉ À L'ALIMENTATION SECTEUR.

## ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ !!

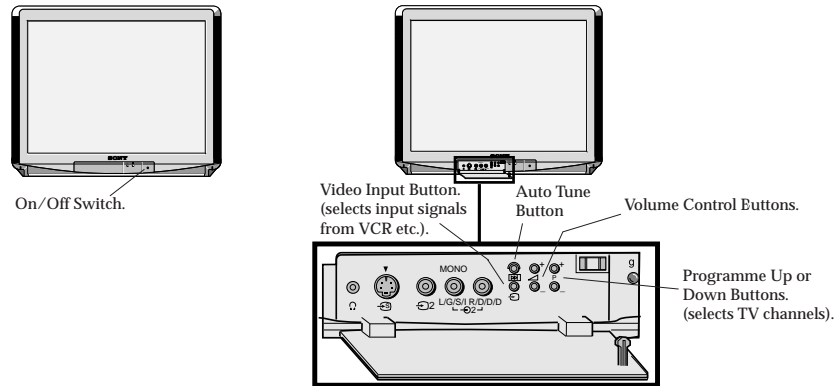
LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET PAR UNE MARQUE  SUR LES SCHÉMAS DE PRINCIPE, LES VUES EXPLOSÉES ET LES LISTES DE PIÈCES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SÈCURITÉ DU FONCTIONNEMENT, NE LES REMPLACER QUE PAR DES COMPSANTS SONY DONT LE NUMÉRO DE PIÈCE EST INDIQUÉ DANS LE PRÉSENT MANUEL OU DANS DES SUPPLÈMENTS PUBLIÉS PAR SONY.

## SECTION 1 GENERAL

The operating instructions mentioned here are partial abstracts from the Operating Manual. The page numbers of the Operating Instruction Manual remain as in the manual.

### Basic TV Features

#### Overview of TV Buttons



#### Overview of Remote Control Buttons

##### To Mute Sound

Press to mute TV sound. Press again to restore the sound.

##### To Select Channels

Press to select channels.

For double-digit programme numbers, e.g. 23, press -/-- first, then the buttons 2 and 3.

##### To Change Screen Format

Press to view programmes in 16:9 mode. Press again to return to 4:3 mode.

##### To Adjust TV Volume

Press to adjust the volume of the TV.

##### To Temporarily Switch Off TV

Press to temporarily switch off TV. Press again to switch on TV from standby mode.

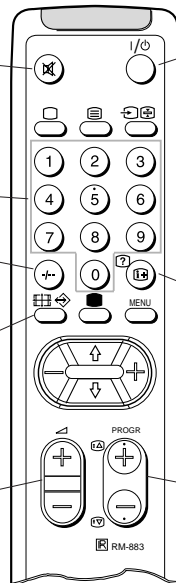
*To save energy we recommend switching off completely when TV is not in use.*  
NOTE: After 15 -30 minutes without a TV signal and without any button being pressed, the TV switches automatically into standby mode.

##### To Reveal On Screen Information

Press to reveal all on-screen indications. Press again to cancel.

##### To Select Channels

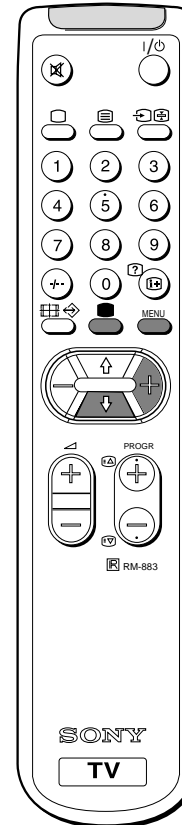
Press to select channels.



### Additional TV Features

#### Using Select Mode

You can select different preset picture and sound modes.



**1** Press the MENU button on the remote control to display the menu on the TV screen.

**2** With the cursor pointing at the symbol on the TV screen as shown, press the yellow button.

**3** Press the blue button to select the desired mode:

- reverts to settings made in "Adjusting the Picture and Sound" sections of the manual
- for films
- for programmes broadcast live

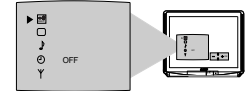
**4** Press the MENU button to remove the menu display from the TV screen.

**Note:** The mode selected in step 3 is now stored.

#### Changing Modes Quickly

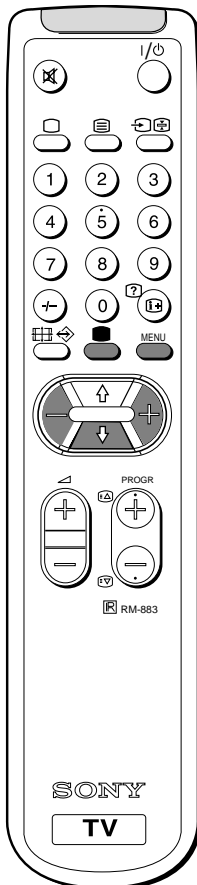
**1** Press the button on the remote control to display the three different modes.




**2** Press the button again to select your desired mode.











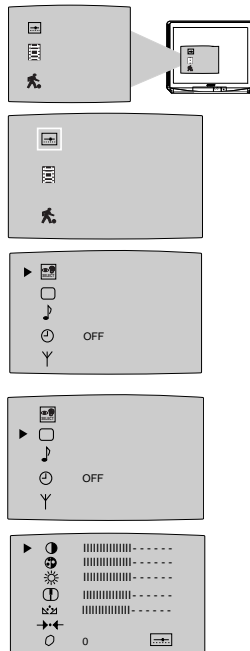
## Adjusting the Picture

Although the picture is adjusted at the factory, you can modify it to suit your own requirement.



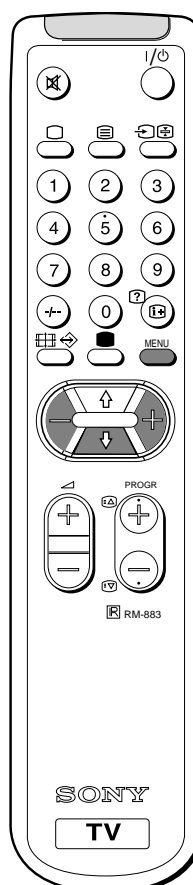
- 1 Press the  button on the remote control to display the three different modes on the TV screen.
- 2 Press the  button to highlight the user mode symbol as shown.
- 3 Press the MENU button to display the menu on the TV screen.
- 4 Press the blue button on the control to select the  symbol on the TV screen then press the yellow button.
- 5 Press the blue button to select the item you wish to change (see below).
- 6 Press the red or yellow button to alter the selected item.
- 7 Press the MENU button to remove the menu display from the TV screen.




Symbol	Item
	• Contrast
	• Colour
	• Brightness
	• Sharpness
	• Hue control (only for NTSC video signals)
	• Reset - resets to factory preset picture level
	• Picture rotation - adjusts picture tilt (only for KV-29X5U model)
	• Represents the mode selected in the "Using Select Mode" section.









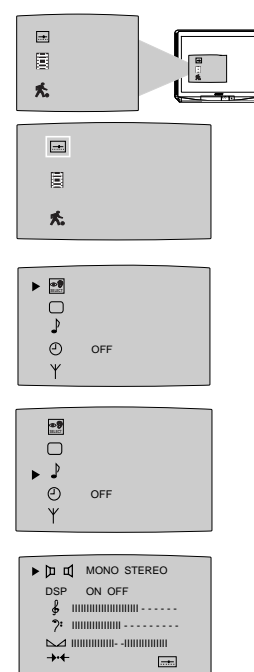
## Adjusting the Sound

Although the sound is adjusted at the factory, you can modify it to suit your own requirement.



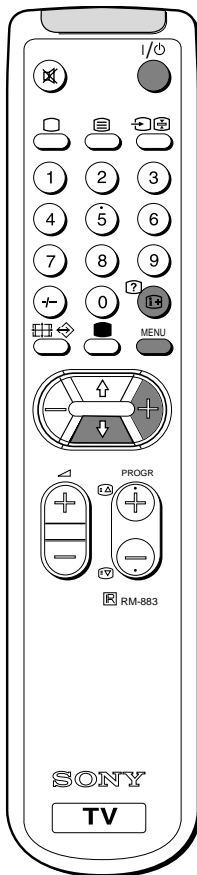
- 1 Press the  button on the remote control to display the three different modes on the TV screen.
- 2 Press the  button to highlight the user mode symbol as shown.
- 3 Press the MENU button to display the menu on the TV screen.
- 4 Press the blue button to select the  symbol on the TV screen then press the yellow button.
- 5 Press the blue button to select the item you wish to change (see below).
- 6 Press the red or yellow button to alter the selected item.
- 7 Press the MENU button to remove the menu display from the TV screen.

Symbol	Item
	• Mono sound/Stereo sound A: Channel 1 sound/B: Channel 2 sound (to select your desired language from a dual sound broadcast)
DSP	• On/Off (digital sound processor)
	• Treble
	• Bass
	• Balance
	• Reset (resets to factory preset sound level)
	• Represents the mode selected in the "Using Select Mode" section of the manual.



## Using the Sleep Timer

The TV may be set to switch automatically to the standby mode after a length of time chosen by you. You may set the time in 15 minute steps up to 4 hours.



**1** Press the MENU button on the remote control to display the menu on the TV screen.

**2** Press the blue button on the control to select the ☺ symbol on the TV screen, then press the yellow button.

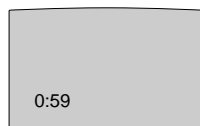
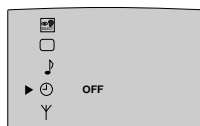
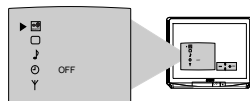
**3** Press the yellow button repeatedly until the required amount of time delay appears on the screen.

**4** Once the time delay has been selected, press the MENU button to remove the on-screen display.

One minute before standby, the display shown appears on the screen.

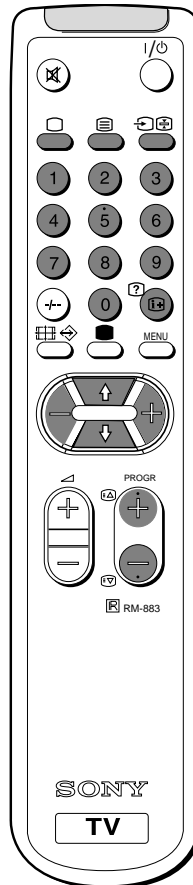
### Notes:

- When watching TV, press the ☺ button to display time remaining.
- To return to normal operation from standby mode, press the I/⏻ button.



## Viewing Teletext

Teletext is an information service transmitted by most TV stations.



### Selecting Teletext

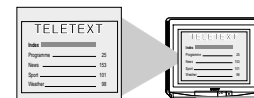
**1** Press a number button on the remote control to select the channel which carries the teletext service you wish to receive.

**2** Press the ☺ button on the remote control to switch on teletext.

**3** Input three digits for the page number using the numbered buttons on the control.

**4** Press the ☐ button to switch off teletext.

**Note:** Teletext errors may occur if the broadcasting signals are weak.



### Using Other Teletext Functions

#### To Superimpose Teletext on to the TV

Press ☺ once in teletext mode or twice in TV mode to superimpose teletext on to the TV screen.

Press ☺ again to cancel teletext mode.

#### To Move to Next or Preceding Page

Press PROGR +/- on the remote control to select the previous or next page.

#### To Freeze a Teletext Page

Press ☺ on the control to freeze the page.

Press ☺ again to cancel the freeze.

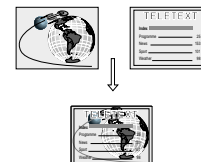
#### Revealing concealed information (eg: answers to a quiz).

Press ? to reveal information.

Press again to conceal the information.

#### Using colour buttons to access pages (Fastext)

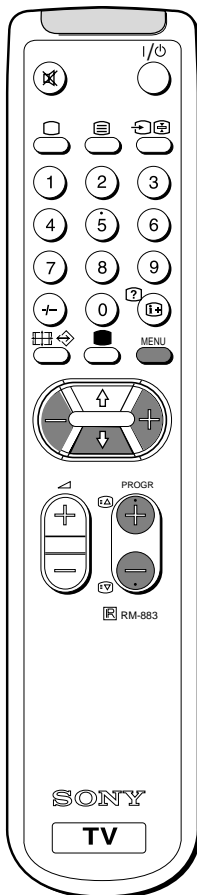
When the colour coded menu appears at the bottom of a page, press the colour button (green, red, yellow or blue) to access the corresponding page.



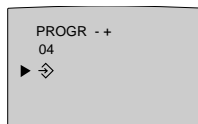
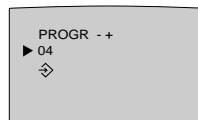
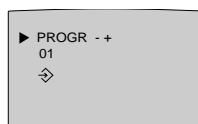
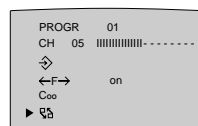
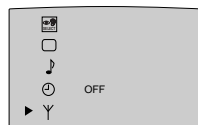
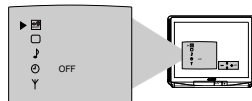


## Exchanging Programme Positions

After tuning you may wish to change the order in which the channels appear on the TV. You may wish for example to exchange the channel on programme number 8 with the channel on programme number 4.

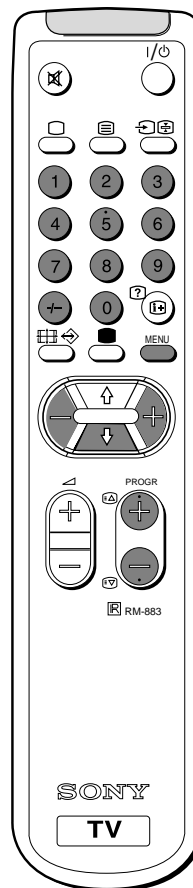


- 1 Press the MENU button on the remote control.
- 2 Press the blue button on the control to select  $\gamma$  on the TV screen, then press the yellow button.
- 3 Press the blue button to select  $\gamma$  then press the yellow button.
- 4 With the cursor pointing at PROGR on the TV screen as shown, press PROGR + or - button until the channel you wish to rearrange appears on screen, then press the blue button once.
- 5 Press the red or yellow button to select the new programme number (e.g. PROGR 04) for your selected channel.
- 6 Press the blue button to select  $\gamma$  then press the yellow button to exchange the channels.
- 7 Repeat steps 4 to 6 if you wish to change the order of the other channels on your TV, then press MENU to return to normal TV screen.
- 8 Press the PROGR+/- button to view your selected channels on their new programme numbers.

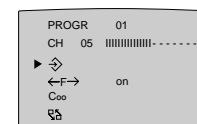
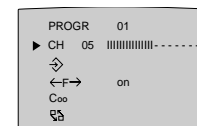
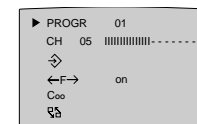
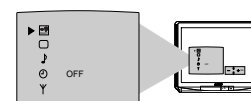


## Manually Tuning the TV

You have already tuned the TV to receive all available channels using the 'Automatically Tuning the TV' procedure at the start of this manual. You can however carry out this operation manually using the following instructions.

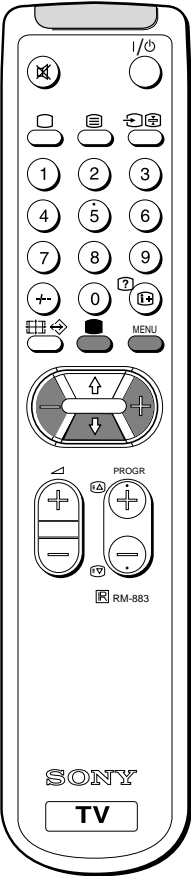


- 1 Press the MENU button on the remote control to display the menu on the TV screen.
- 2 Press the blue button to select the  $\gamma$  symbol on the TV screen then press the yellow button.
- 3 With the cursor pointing at PROGR on the TV screen as shown, press PROGR + or - button on the remote control to allocate a programme number to the channel (eg PROGR 01). For double digit numbers e.g. 55, press the -/-- button on the remote control then the corresponding numbered buttons.
- 4 Press the blue button to select the tuning bar scale then press the yellow or red button once to start the channel search. (Yellow to search up the scale or red to search down). When a channel is found it appears on the TV screen.
- 5 If you do not wish to store this channel on the programme number you selected, press the yellow or red button to continue searching for the desired channel.
- 6 If this is the channel you wish to store, press the blue button to select the  $\gamma$  symbol on the screen then press the yellow button to store.
- 7 Repeat steps 3 to 6 if you wish to store more channels then press the MENU button to remove the menu from the TV screen.

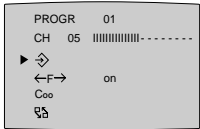
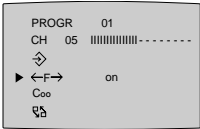
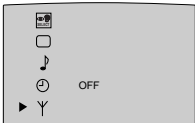
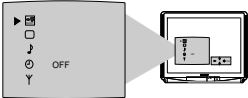


# Fine-Tuning Channels

If a channel is slightly off tune, you can use this fine tune procedure to obtain a better picture reception.



- 1 With the channel you wish to fine-tune on the screen, press the MENU button on the remote control. The menu display appears on the TV screen.
- 2 Press the blue button on the remote control to select the Y symbol on the TV screen then press the yellow button.
- 3 Press the blue button to select the ←F→ symbol on the TV screen then press the red or yellow button to adjust the tuning.
- 4 Press the blue button to select the ⇄ symbol on the TV screen then press the yellow button to store.
- 5 Press the MENU button to remove the menu from the TV screen.



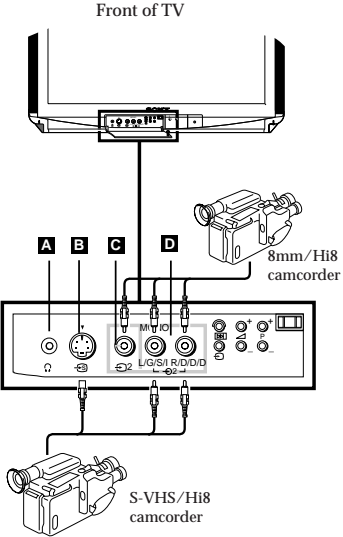
# Using Optional Equipment

You can connect optional audio or video equipment to your TV, such as a VCR, a camcorder or video games as shown.

## Select and View the Input Signal

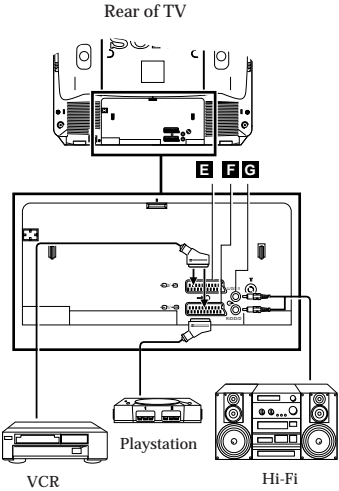
- 1 Connect your equipment to the designated TV socket.
  - 2 Press the button repeatedly on your remote control until the correct input symbol appears on the TV screen.
- | Symbol | Input signals  |
|--------|--|
| 1      | • Audio/video input signal through the Euro AV connector <b>F</b>  |
| 2      | • RGB input signal through the Euro AV connector <b>F</b>  |
| 2      | • Audio/video input signal through the Euro AV connector <b>E</b> or the phono sockets <b>C</b> and <b>D</b> |
| 3      | • S video input signal through the socket <b>B</b> .   |
- 3 Switch on the connected equipment.
  - 4 To return to normal TV picture, press the button on the remote control.

Note: To avoid picture distortion, do not connect equipment to the **B**, **C** or **E** connectors at the same time.














## Additional Information

- Connecting a VCR**  
We recommend you tune in the VCR signal to TV programme number '0' using the 'Manually Tuning in the TV' section of this instruction manual.
- Connecting Headphones**  
Plug in your headphones to the socket **A** on the front of the TV set.
- Connecting Decoders**  
Plug in decoders to the socket **F** on the rear of the TV.
- Connecting to External Audio Equipment**  
Plug in your Hi-Fi equipment to the **G** sockets on the rear of the TV if you wish to amplify the audio output from the TV.












Troubleshooting

Here are some simple solutions to problems which may affect the picture and sound.

Problem	Solution
No picture (screen is dark), no sound	<ul style="list-style-type: none"><li>• Plug the TV in.</li><li>• Press the  button on the front of TV.</li><li>• If the  indicator is on press  button or a programme number button on the remote control.</li><li>• Check the aerial connection.</li><li>• Check that the selected video source is on.</li><li>• Turn the TV off for 3 or 4 seconds and then turn it on again using the  button on the front of the TV.</li></ul>
Poor or no picture (screen is dark), but good sound.	<ul style="list-style-type: none"><li>• Using the MENU system, select the Picture Adjustment display. Adjust the brightness, picture and colour balance levels.</li><li>• From the Picture Adjustment display select  to return to the factory settings.</li></ul>
Poor picture quality when watching a RGB video source.	<ul style="list-style-type: none"><li>• Press the  button repeatedly on the remote control until the RGB symbol  is displayed on the screen.</li></ul>
Good picture, no sound	<ul style="list-style-type: none"><li>• Press the  +/- button on the remote control.</li><li>• If  is displayed on the screen, press the  button on the remote control.</li></ul>
No colour on colour programmes	<ul style="list-style-type: none"><li>• Using the MENU system, select the Picture Adjustment display. Adjust the colour balance.</li><li>• From the Picture Adjustment display select  to return to the factory settings.</li></ul>
Distorted picture when changing programmes or selecting teletext	<ul style="list-style-type: none"><li>• Turn off any equipment connected to the 21 pin Euro connector on the rear of the TV.</li></ul>
Remote control does not function	<ul style="list-style-type: none"><li>• Replace the batteries.</li></ul>

- If you continue to have these problems, have your TV serviced by qualified personnel.
- NEVER open the casing yourself.

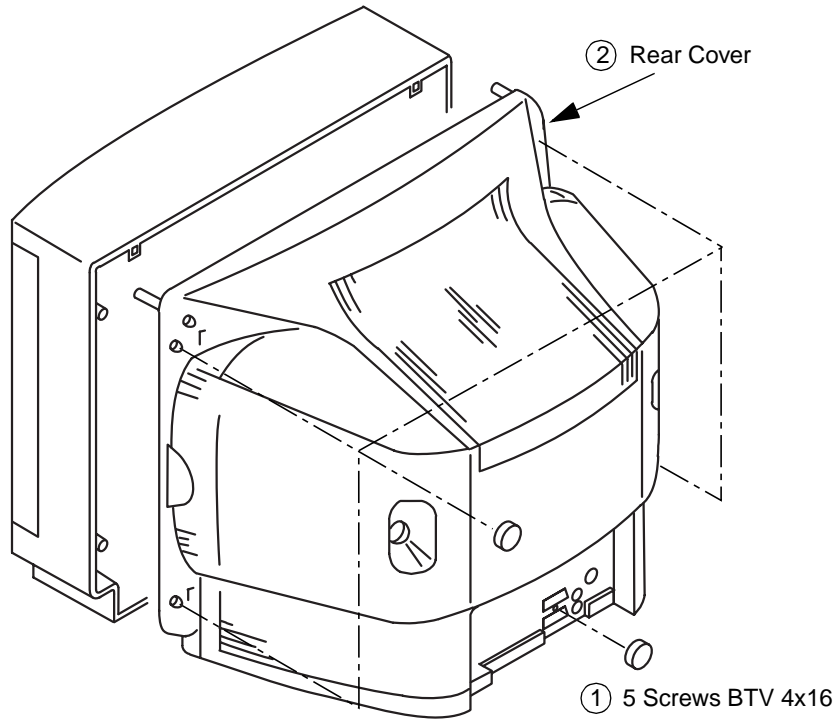
Specifications

TV system	I
Colour system	PAL
	NTSC 3.58, 4.43 (only Video In)
Channel coverage	
UHF:	B21-B69
Picture tube	
KV-25X5U:	Super Trinitron
	Approx. 63 cm (25 inches) (Approx. 59 cm picture measured diagonally), 100° deflection
KV-29X5U:	Super Trinitron
	Approx. 72 cm (29 inches) (Approx. 68 cm picture measured diagonally), 100° deflection
Inputs	
• Rear Terminals	
 1 / 	21-pin Euro connector (CENELEC standard) including audio/video input, RGB input, TV audio/video output
 2 / 	21-pin Euro connector (CENELEC standard) including audio/video input, S-video input, Monitor audio/video output
• Front Terminals	
 2	video input - phono jack
 2	audio inputs - phono jacks
	S video input - 4 pin DIN
Outputs	
	Headphones jack - minijack stereo
	Audio outputs (variable) - phono jacks
Sound output:	
	2 x 10 W (RMS)
Power consumption	
KV-25X5U:	139 W
KV-29X5U:	158.5 W
Standby Power consumption	
	1 W
Dimensions (wxhxd)	
KV-25X5U:	Approx. 593 x 502 x 506 mm
KV-29X5U:	Approx. 676 x 557 x 525 mm
Weight	
KV-25X5U:	Approx. 33.2 kg
KV-29X5U:	Approx. 43.5 kg
Accessories supplied	
	RM-883 Remote Control (1)
	IEC designated batteries (2)
Other features	
	TELETEXT, Fastext

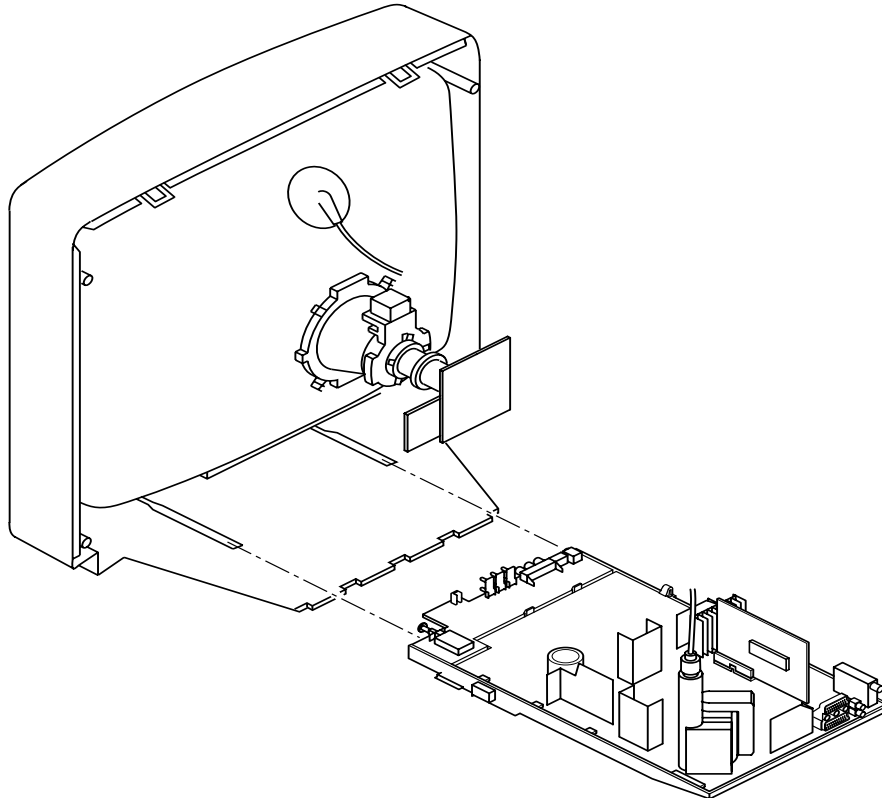
Design and specifications are subject to change without notice.

## SECTION 2 DISASSEMBLY

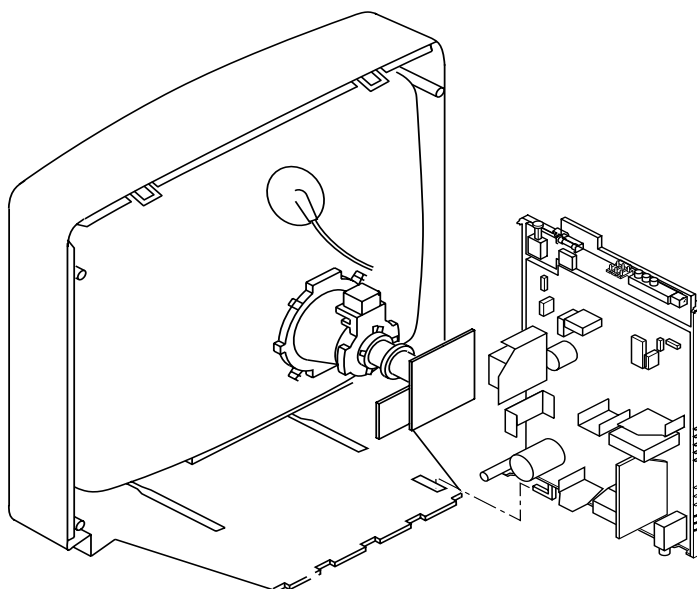
### 2-1. REAR COVER REMOVAL



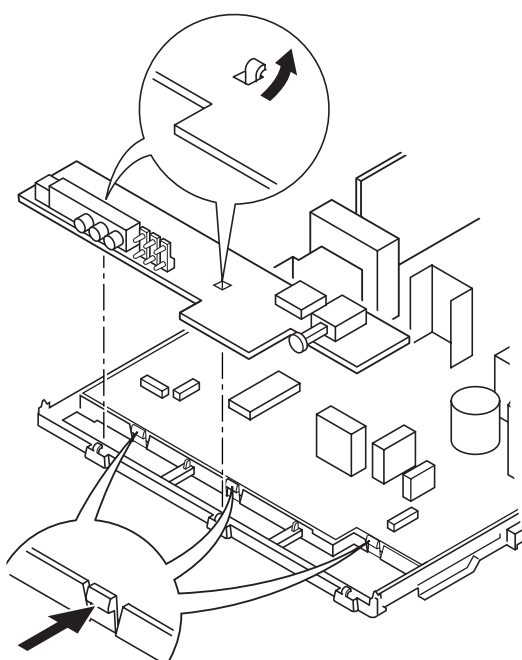
### 2-2. CHASSIS ASSY REMOVAL



## 2-3. SERVICE POSITION

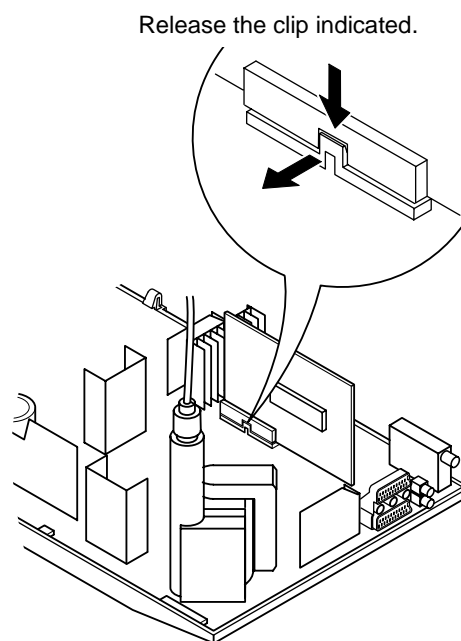


## 2-4. H1 BOARD REMOVAL

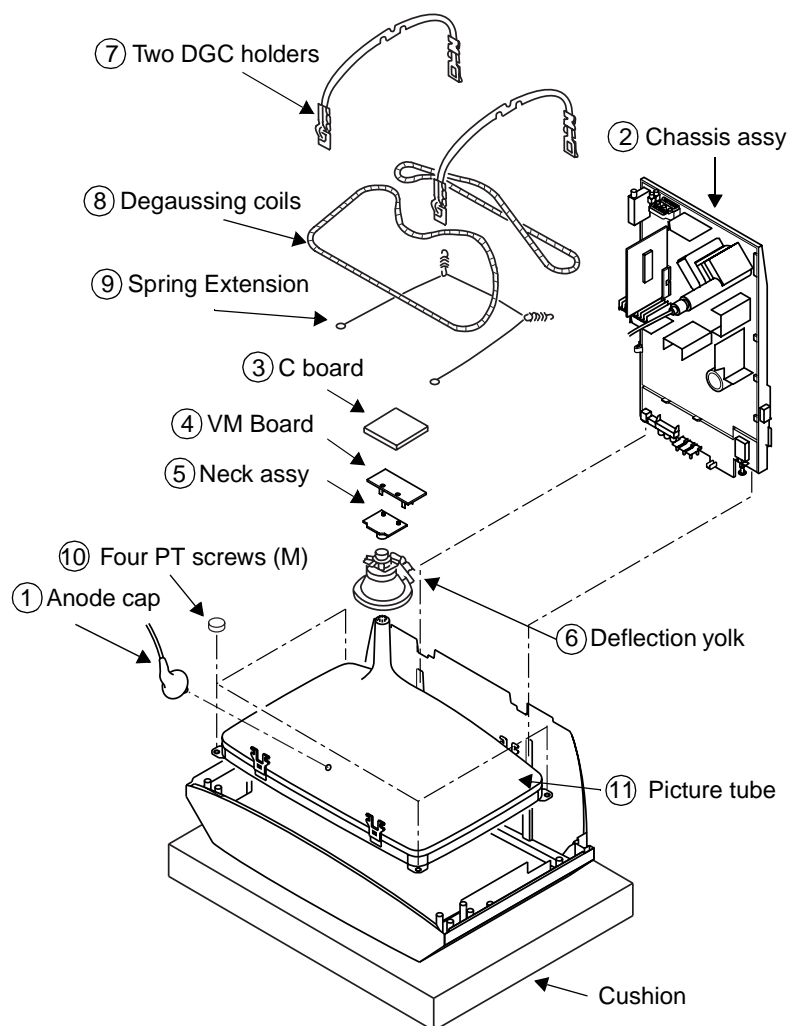


To release, push the claws in the direction of the arrow as indicated.

## 2-5. S1 BOARD REMOVAL



## 2-6. PICTURE TUBE REMOVAL



### • REMOVAL OF ANODE-CAP

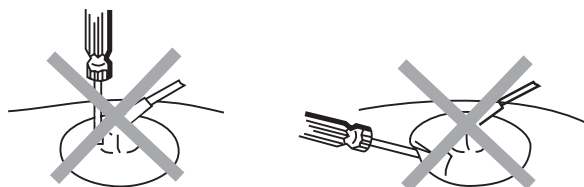
**Note :** Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon paint on the CRT, after removing the anode.

#### \* REMOVING PROCEDURES.

- 
- ① Turn up one side of the rubber cap in the direction indicated by the arrow **a**
  - ② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow **b**
  - ③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrow **c**

### • HOW TO HANDLE THE ANODE-CAP

- ① To prevent damaging the surface of the anode-cap do not use sharp materials.
- ② Do not apply too great a pressure on the rubber, as this may cause damage to the anode connector.
- ③ A metal fitting called a shatter hook terminal is fitted inside the rubber cap. Do not turn the rubber foot over excessively this may cause damage if the shatter hook sticks out.



# REMOVAL AND REPLACEMENT OF THE MAIN-BRACKET BOTTOM PLATES.


## (1) REMOVING THE PLATES

In the event of servicing being required to the solder side of the A Board printed wiring board, the bottom plates fitted to the main chassis bracket require to be removed.

This is performed by cutting the gates with a sharp wire cutter at the locations shown and indicated by arrows.

**Note :**There are 2 plates fitted to the main bracket and secured by 4 gates.

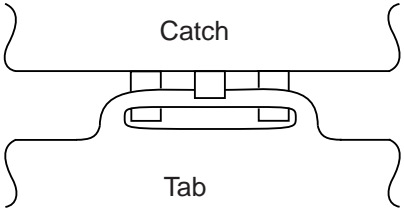
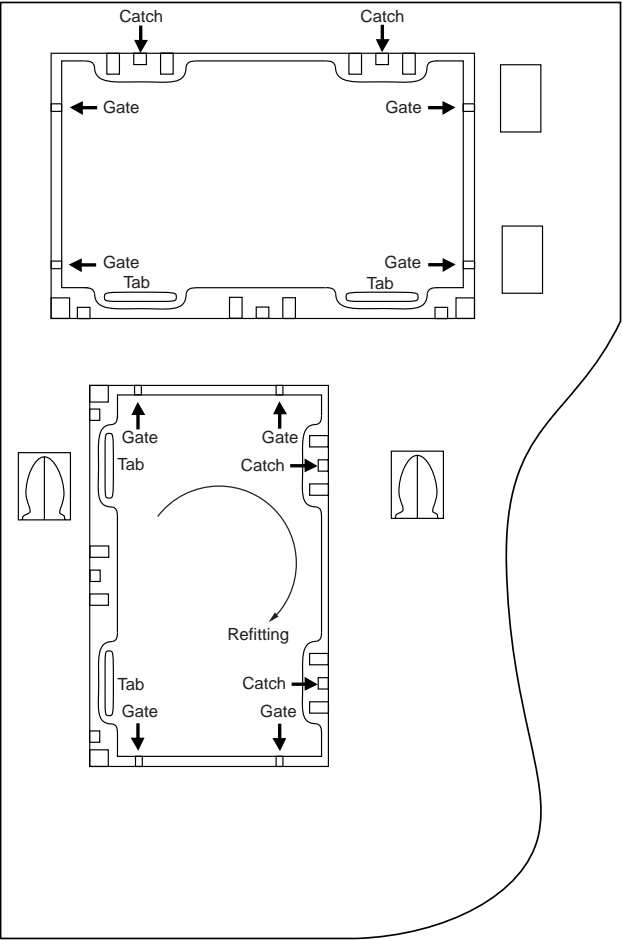
Only remove the necessary plate to gain access to the printed wiring board.

 For safety reasons, on no account should the plates be removed and not refitted after servicing.

## (2) REFITTING THE PLATES

Because the plates differ in size it is important that the correct plates are refitted in their original location.

Please note that the plates need to be rotated 180 degrees from the cut position to to allow the tabs to be fitted in the catch positions.



## SECTION 3 SET-UP ADJUSTMENTS

- When complete readjustment is necessary or a new picture tube is installed, carry out the following adjustments.
- Unless there are specific instructions to the contrary, carry out these adjustments with the rated power supply.
- Unless there are specific instructions to the contrary, set the controls and switches to the following settings :

Contrast ..... 80% [or remote control normal]  
 Brightness ..... 50%

Carry out the following adjustments in this order :

- 3-1. Beam Landing
- 3-2. Convergence
- 3-3. Focus
- 3-4. White balance

**Note :** Test equipment required

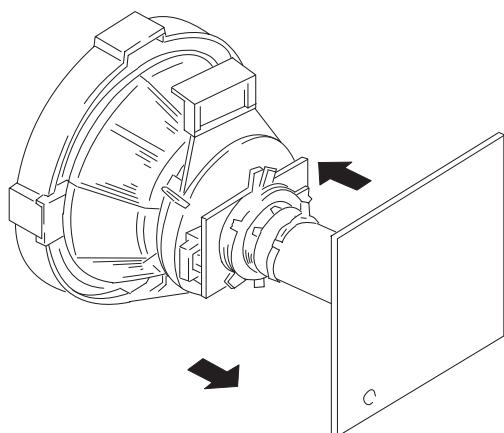
1. Color bar/pattern generator.
2. Degausser.
3. Oscilloscope.
4. Digital multimeter.
5. DC Power supply.

### Preparation:

- In order to reduce the influence of geomagnetism on the set's picture tube, face it in an easterly or westerly direction.
- Switch on the TV set's power and degauss with the degausser.

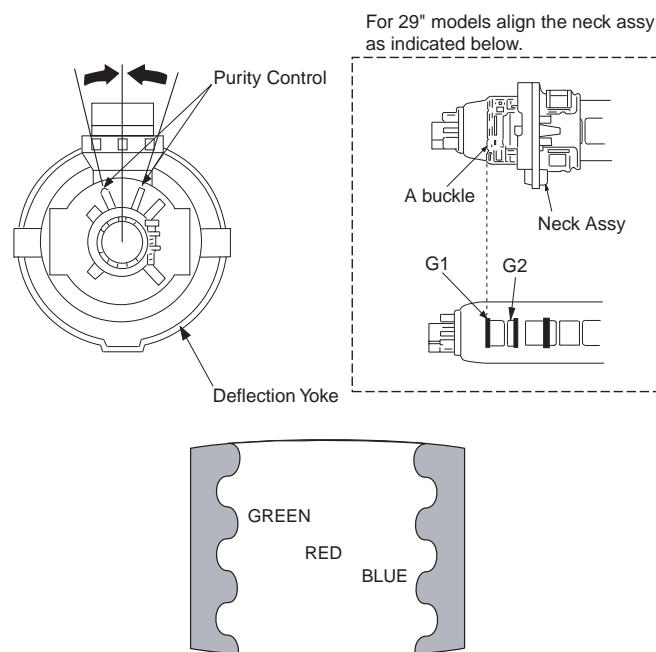
### 3-1. BEAM LANDING

- Input an all-white signal from the pattern generator. Set the Contrast and Brightness to normal.
- Set the pattern generator raster signal to all Red.
- Move the deflection yolk forward and adjust with the purity control so that the Red is at the centre and the Blue and Green take up equally sized areas on each side of the screen. [See Fig.3-1 - 3-3].
- Move the deflection yolk forward and adjust so that the entire screen becomes Red. [See Fig.3-1].
- Switch the raster signal to Blue, then to Green and verify the purity condition.
- When the position of the deflection yolk has been determined, fasten the deflection yolk with the screws.
- If the beam does not land correctly in all the corners, use magnets to correct it. [See Fig.3-4].

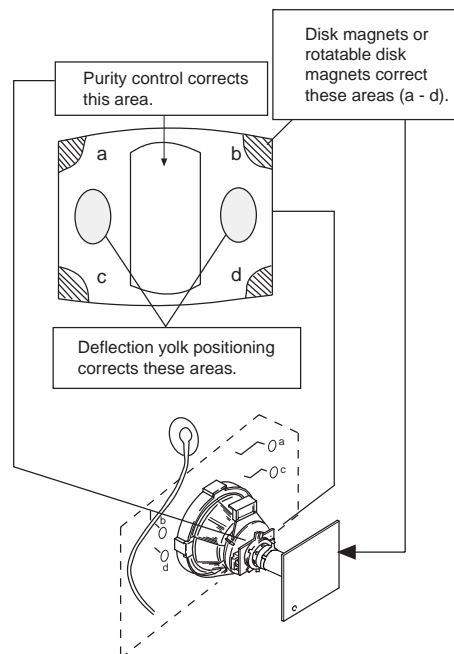


**Fig. 3-1**

**Fig. 3-2**



**Fig. 3-3**



**Fig. 3-4**

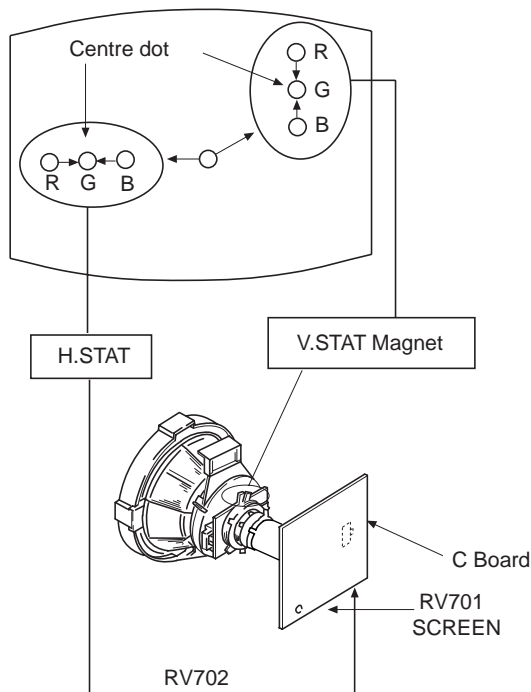


### 3-2. CONVERGENCE

#### Preparation:

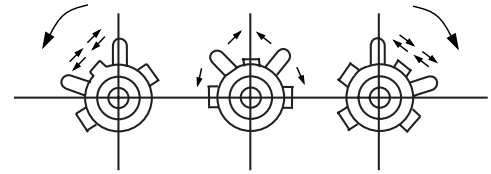
- Before starting this adjustment, adjust the focus, horizontal size and vertical size.
- Minimize the Brightness setting.
- Input a dot pattern from the pattern generator.

#### (1) Horizontal and vertical static convergence

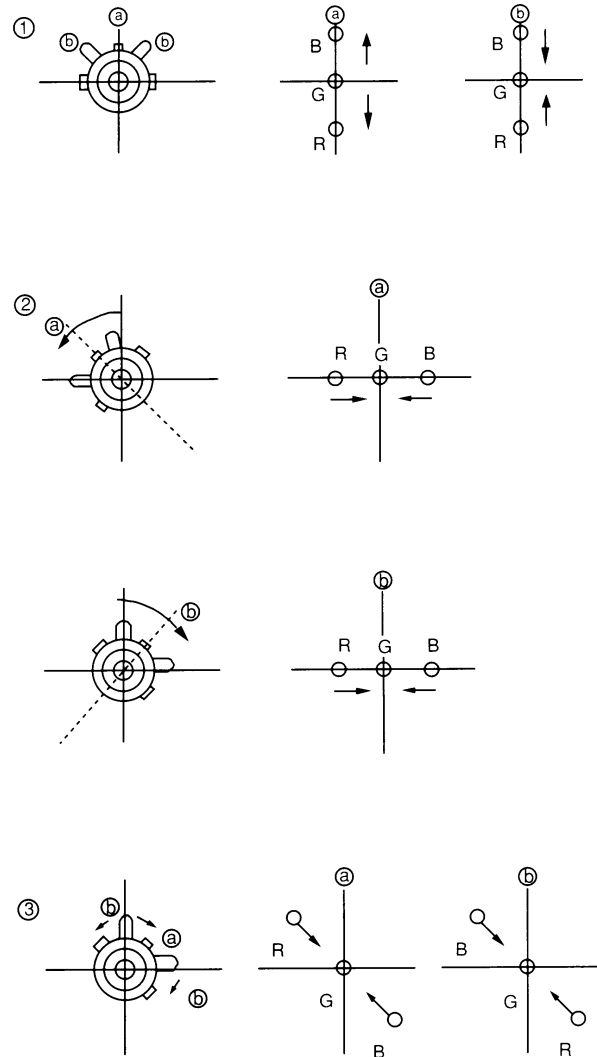


1. [Moving horizontally], adjust the H.STAT control so that the Red, Green and Blue points are on top of each other at the centre of the screen.
2. [Moving vertically], adjust the V.STAT magnet so that the Red, Green and Blue points are on top of each other at the centre of the screen.
3. If the H.STAT variable resistor is unable to bring the Red, Green and Blue points together at the centre of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V.STAT magnet in the manner indicated below. [In this case, the H.STAT variable resistor and the V.STAT magnet influence each other].

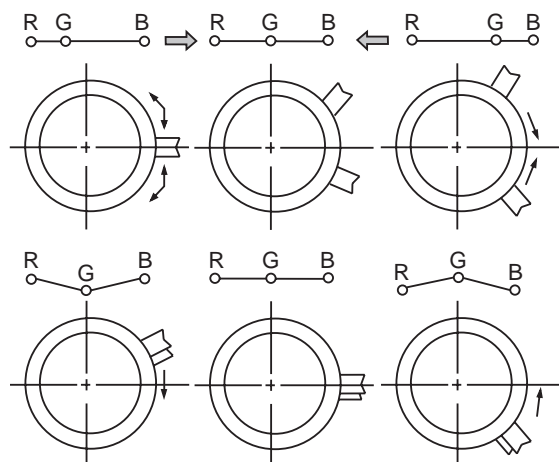
- Tilt the V.STAT magnet and adjust the static convergence by opening or closing the V.STAT magnet.



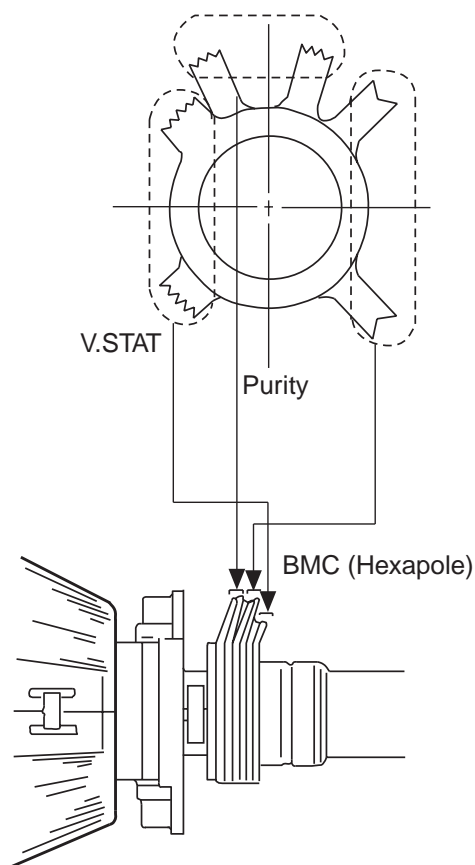
4. If the V.STAT magnet is moved in the direction of the (a) and (b) arrows, the Red, Green and Blue points move as indicated below.



## (2) Operation of the BMC (Hexapole) magnet.



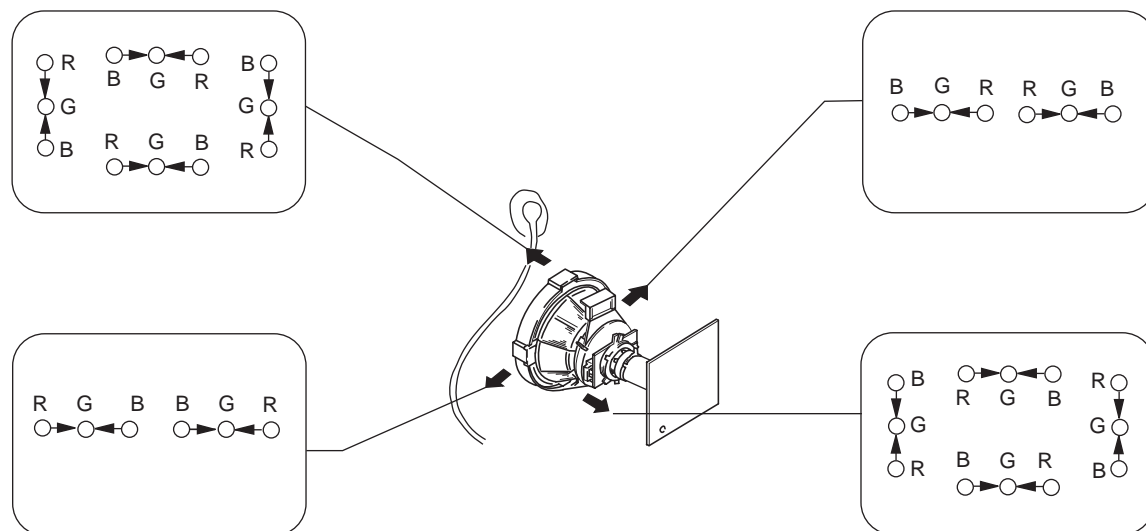
- The respective dot position resulting from moving each magnet interact, so be sure to perform adjustment whilst tracking.  
Use the H.STAT VR to adjust the Red, Green and Blue dots so that they coincide at the centre of the screen [by moving the dots in the horizontal direction].



## (3) Dynamic convergence adjustment.

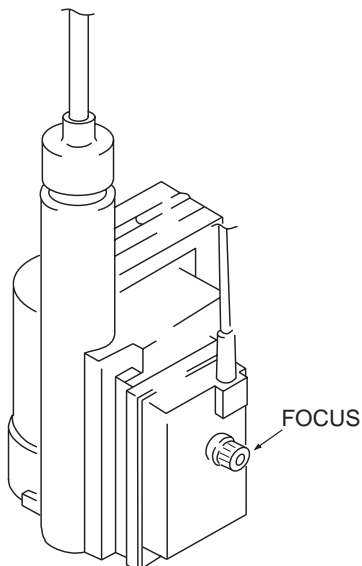
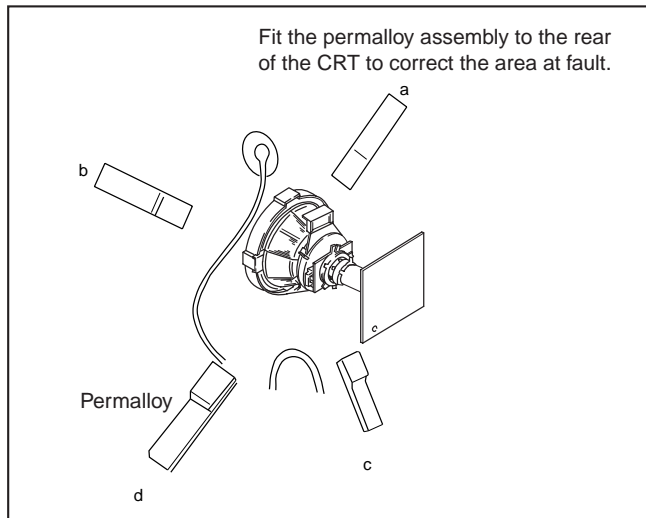
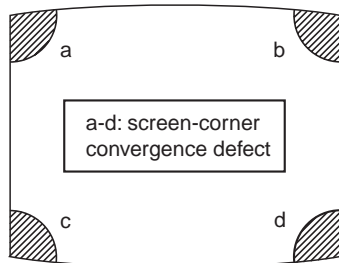
### Preparation:

- Before starting this adjustment, adjust the horizontal and vertical static convergence.
- Slightly loosen the deflection yolk screws.
- Remove the deflection yolk spacer.
- Move the deflection yolk as indicated in the figure below and optimize the convergence.
- Tighten the deflection yolk screws.
- Re-install the deflection yolk spacer.



**(4) Screen corner convergence.**

- If you are unable to adjust the corner convergence properly, this can be corrected by the use of permalloy assemblies.

**3-3. Screen [G2], White balance****G2 Setting**

- Input a dot signal from the pattern generator.
- Set the Picture, Brightness and Colour to minimum.
- Apply 170Vdc from an external power supply to the R, G and B cathodes of the CRT.
- Whilst watching the picture, adjust the G2 control [RV701 SCREEN] located on the C Board to the point just before the flyback return lines disappear.

**White balance adjustment**

- Input a 'PAL' all-white signal from the pattern generator.
- Enter into the Service Mode.
- Enter into the 'Picture' service menu.
- Select the 'Green drive' and adjust so that the White Balance becomes optimum.
- Select the 'Blue drive' and adjust so that the White Balance becomes optimum.
- Set the Picture to MIN.
- Set the 'R-cut-off' to 07.
- Adjust the 'G-cut-off', and the 'B-cut-off' so that the White Balance becomes optimum.
- Press the ☐ button to return to TV operation.

**PICTURE**

R - Drive	Adj
G - Drive	Adj
B - Drive	Adj
R - cut - off	Adj
G - cut - off	Adj
B - cut - off	Adj
ID - start	02
ID - stop	01
ID - level	01
Bellfo	Adj
Sub Colour	Adj
Sub Brightness	Adj

**3-4. FOCUS**

- Input a Phillips colour pattern
- Set the picture settings to normal.
- Adjust the focus control located on the Flyback transformer to bring the centre of the screen into focus.

**Note** :Bring only the centre area of the screen into focus, switch to an all-white pattern and confirm that the magenta ring is hardly noticed. To obtain optimum focus balance the focus setting between optimum screen centre focus and a reduced magenta ring level.

## SECTION 4

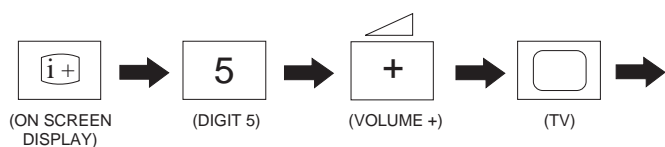
### CIRCUIT ADJUSTMENTS

#### 4-1. ELECTRICAL ADJUSTMENTS

Service adjustments to this model can be performed using the supplied Remote Commander RM-883.

##### HOW TO ENTER INTO SERVICE MODE

1. Turn on the main power switch and enter into the stand-by mode.
2. Press the following sequence of buttons on the Remote Commander.



- 'TT--' will appear in the upper right corner of the screen. Other status information will also be displayed.
3. Press 'MENU' on the remote commander to obtain the following menu on the screen.

TEST MENU	
> Picture	
Geometry	
Sound	
TV Status	
AGC Adjust	
Technical	

4. Move to the corresponding adjustment item using the 'Green' [up] or 'Blue' [down] buttons on the Remote Commander.
5. Press the 'Yellow' button to enter into the required menu item.
6. Press the 'Menu' button on the Remote Commander to quit the Service Mode when all adjustments have been completed.

**Note :** The data shown in the 'TV STATUS' table is dependant on destination and country.

##### PICTURE

R - Drive	Adj
G - Drive	Adj
B - Drive	Adj
R - cut - off	Adj
G - cut - off	Adj
B - cut - off	Adj
ID - start	02
ID - stop	01
ID - level	01
Bellfo	Adj
Sub Colour	Adj
Sub Brightness	Adj

##### GEOMETRY

V centre	Adj
V size	Adj
V Lin	Adj
S Corr	Adj
H Cent	Adj
H Size	Adj
Pin Amp	Adj
Corner Pin	Adj
Pin Phase	Adj
V Bow	Adj
V Angle	Adj
Upper V Lin	Adj
Lower V Lin	Adj
Left HBLK	07
Right HBLK	07
CD Mode (AV)	01

##### SOUND

Nicam Error Lower	20
Nicam Error Upper	80
Nicam Error Rate	xx [Status only]
AGC Gain Level	xx [Status only]

##### TV STATUS

Destination	A/L/E/U/D/B/K/R
Text Language	East/West

## TECHNICAL

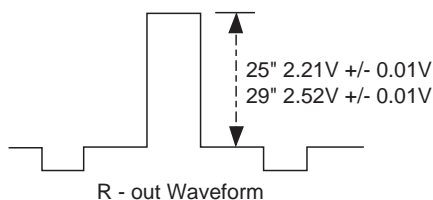
GD - Secam	30
BD - Secam	31
RC - Secam	11
GC - Secam	19
BC - Secam	10
GD - Sports	30
BD - Sports	36
RC - Sports	14
GC - Sports	15
BC - Sports	17
Y - Delay (AV)	07

## SUB BRIGHTNESS ADJUSTMENT

1. Input a Phillips colour pattern.
2. Press 'TEST' 'TEST' 13 on the Remote Commander.
3. Adjust the 'Sub-Brightness' data so that there is barely a difference between the 0 IRE and 10 IRE signal levels.

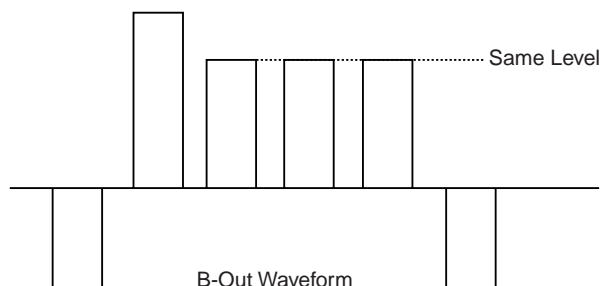
## SUB CONTRAST ADJUSTMENT

1. Input a video signal that contains a small 100% white area on a black background
2. Set the picture control to maximum. ['TT01']
3. Connect an oscilloscope to Pin 1 of CN504 [A Board].
4. Enter into the 'Picture' service menu.
5. Adjust the 'R - Drive' data to obtain the following waveform.



## SUB COLOUR ADJUSTMENT

1. Receive a PAL colour bar signal.
2. Connect an oscilloscope to Pin 3 of CN504 [A Board].
3. Enter into the 'Picture' service menu.
4. Adjust the 'Sub Colour' data so that the Cyan, Magenta and Blue colour bars are of equal levels as indicated below.



**Note:** Ensure that no signal is applied to the Antenna socket while carrying out the following IF adjustments.

## SYSTEM B/G, D/K, I &amp; L I.F ADJUSTMENT

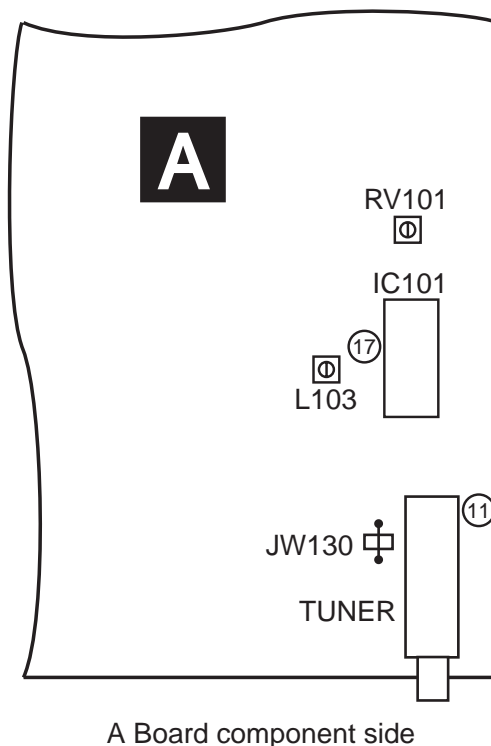
1. Input a 38.9Mhz carrier signal at 100dBuV to Pin 11 [IF output] of the tuner [TU101].
2. Measure the voltage at Pin 17 of [IC101].
3. Adjust L103 [A Board] to obtain a voltage of 2.5V +/- 0.3V.

## SYSTEM L BAND 1 I.F ADJUSTMENT

1. Input a 34.0MHz carrier signal at 100dBuV to Pin 11 [IF output] of the tuner [TU101].
2. Select 'system L' + C00 [channel 00].
3. Measure the voltage at Pin 17 [IC101].
4. Adjust RV101 [A Board] to obtain a voltage of 2.5V +/- 0.3V.

## TUNER AGC ADJUSTMENT

1. Receive a signal of 65dBuV / 75 ohm terminated, via the tuner antenna socket.
2. Connect a voltmeter to JW130 [A Board].
3. Enter into the 'Test Menu'.
3. Select the 'AGC Adjust' menu item.
4. Adjust the data using the Yellow and Green buttons on the Remote Commander to obtain a voltage of 3.0V +/- 0.2V.

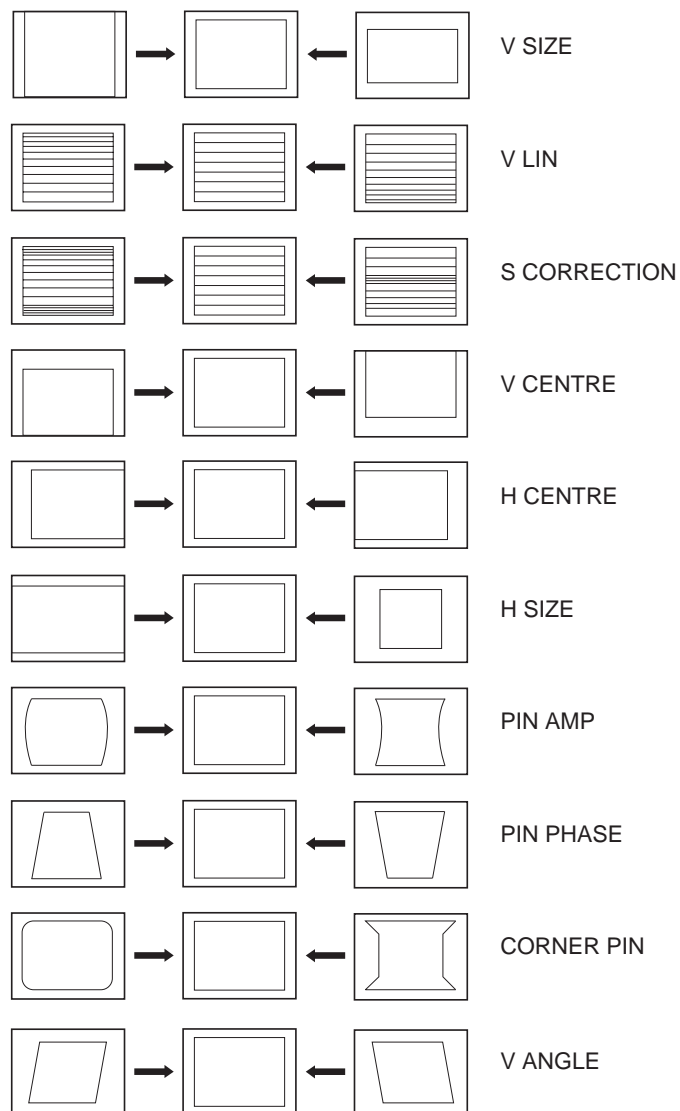


## DEFLECTION SYSTEM ADJUSTMENT

1. Enter into the 'Geometry' service menu.
2. Select and adjust each item in order to obtain the optimum image.

### GEOMETRY

V centre	Adj
V size	Adj
V Lin	Adj
S Corr	Adj
H Cent	Adj
H Size	Adj
Pin Amp	Adj
Corner Pin	Adj
Pin Phase	Adj
V Bow	Adj
V Angle	Adj
Upper V Lin	Adj
Lower V Lin	Adj
Left HBLK	07
Right HBLK	07
CD Mode (AV)	01



## 4-2. TEST MODE 2:

Is available by pressing 'TEST' button twice, OSD 'TT' appears. The functions described below are available by pressing the two numbers. To release the Test mode 2, press 0 twice, or switch the TV into stand-by mode, or press the ☐ TV button on the remote commander.

00	Cancel Test mode
01	Picture maximum
02	Picture minimum
03	Volume 35%
04	Volume 50%
05	Volume 65%
06	Volume 80%
07	Ageing mode On/Off
08	Set shipping conditions
09	Display TV Status
10	No function
11	Sub Picture Adjustment
12	Sub Colour Adjustment
13	Sub Brightness Adjustment
14	Text H position Adjustment
15	Rotation test
16	Picture level 50%
17	Audio mute ON
18	Disable Blanking
19	No function
20	No function
21	Destination A
22	Destination L
23	Destination E
24	Destination U
25	Destination D
26	Destination B
27	Destination K
28	Destination R
29	No function
30	No function
31	Audio shutoff Disable/Enable
32	RGB priority Disable/Enable
33	Rotation On/OFF
34	Text language East/West
35	Wide CRT/4:3 CRT
36	VM ON/OFF test
37	No function
38	No function
39	No function
40	No function
41	Re-initialize the NVM [Only when Prog=59]

42	Re-initialise geometry settings [Only when Prog=59]
43	No function
44	No function
45	No function
46	No function
47	No function
48	Set NVM as NON Virgin [Only when Prog=59]
49	Set NVM as Virgin [Only when Prog=59]
50	No function
51	No function
52	No function
53	No function
54	No function
55	No function
56	No function
57	No function
58	No function
59	No function
60	No function
61	Auto AGC Adjust
62	Alternative Dest B Autotuning
63	Enable/Disable Y/C input
64	Signal Quality Check for Auto Tune
65	Signal Quality NOT Checked for Auto Tune
66	No function
67	Manual AGC Adjust
68 -100	No function

### 4-3. FE-1 SELF DIAGNOSTIC SOFTWARE

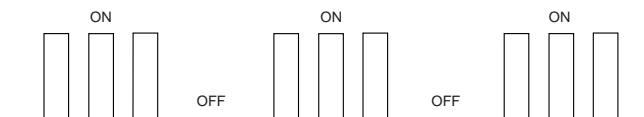
The identification of errors within the FE-1 chassis is triggered in one of two ways :- 1: Busy or 2: Device failure to respond to IIC. In the event of one of these situations arising the software will first try to release the bus if busy (Failure to do so will report with continuous flashing LED) and then communicate with each device in turn to establish if a device is faulty. If a device is found to be faulty the relevant device number will be displayed through the LED (Series of flashes which must be counted) See Table 1., non fatal errors are reported using this method. Each time the software detects an error it is stored within the NVM. See Table 2.

**Table 1**

ERROR	LED ERROR COUNT
No error	00
Not allowed (may be confused with Sircs response flash!)	01
Protection circuit trip < ANY TIME >	02
Reserved	03
No vertical sync	04
AKB	05
IIC bus clock and/or data lines low at Power ON	06
NVM no IIC bus acknowledge at Power ON	07
Jungle controller no IIC acknowledge at Power ON	08
Tuner no acknowledge at Power ON	09
Sound processor no acknowledge at Power ON	10

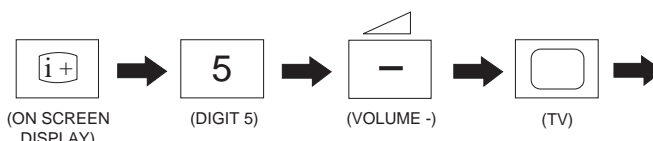
#### Flash Timing Example : e.g. error number 3

SiBy LED



#### How to enter into Table 2

1. Turn on the main power switch of the TV set and enter into the 'Standby Mode'.
2. Press the following sequence of buttons on the Remote Commander.



3. The following table will be displayed indicating the error count.

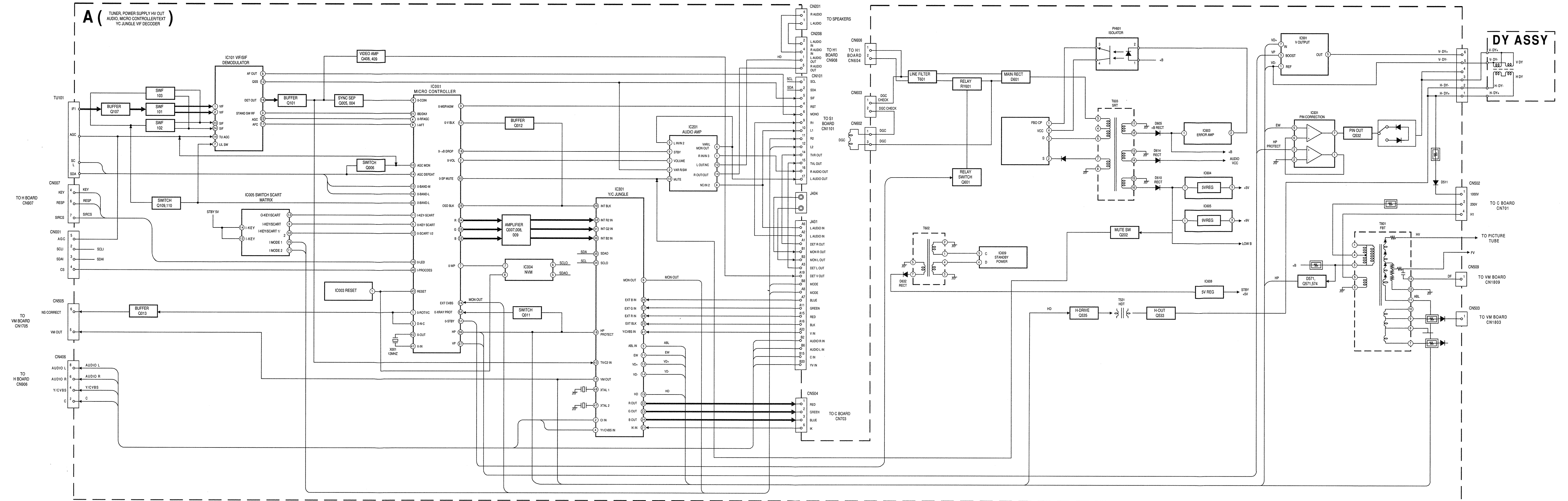
**Table 2**

Error	Times
2	-
3	-
4	-
5	-
6	-
7	-
8	-
9	-
10	-

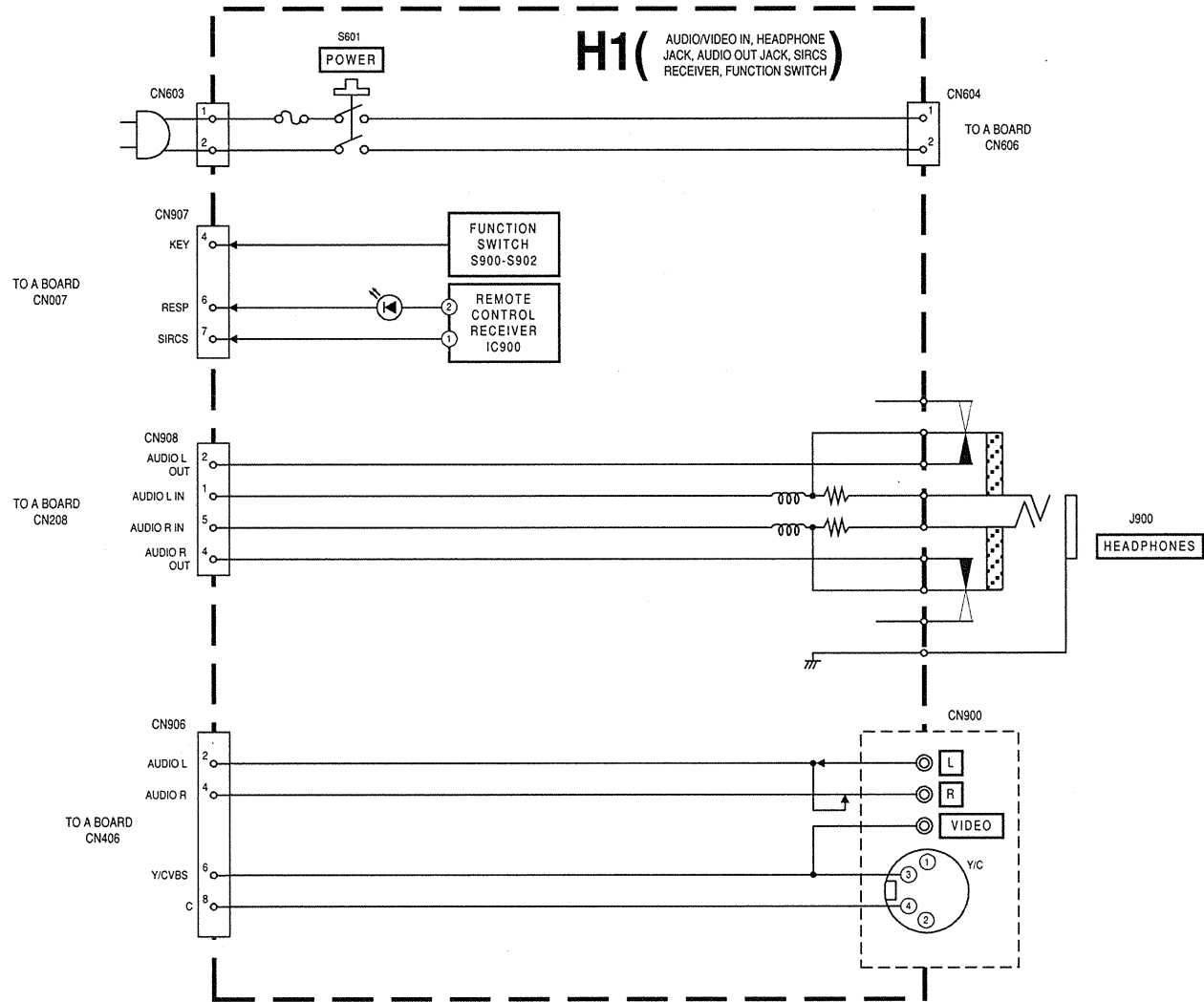
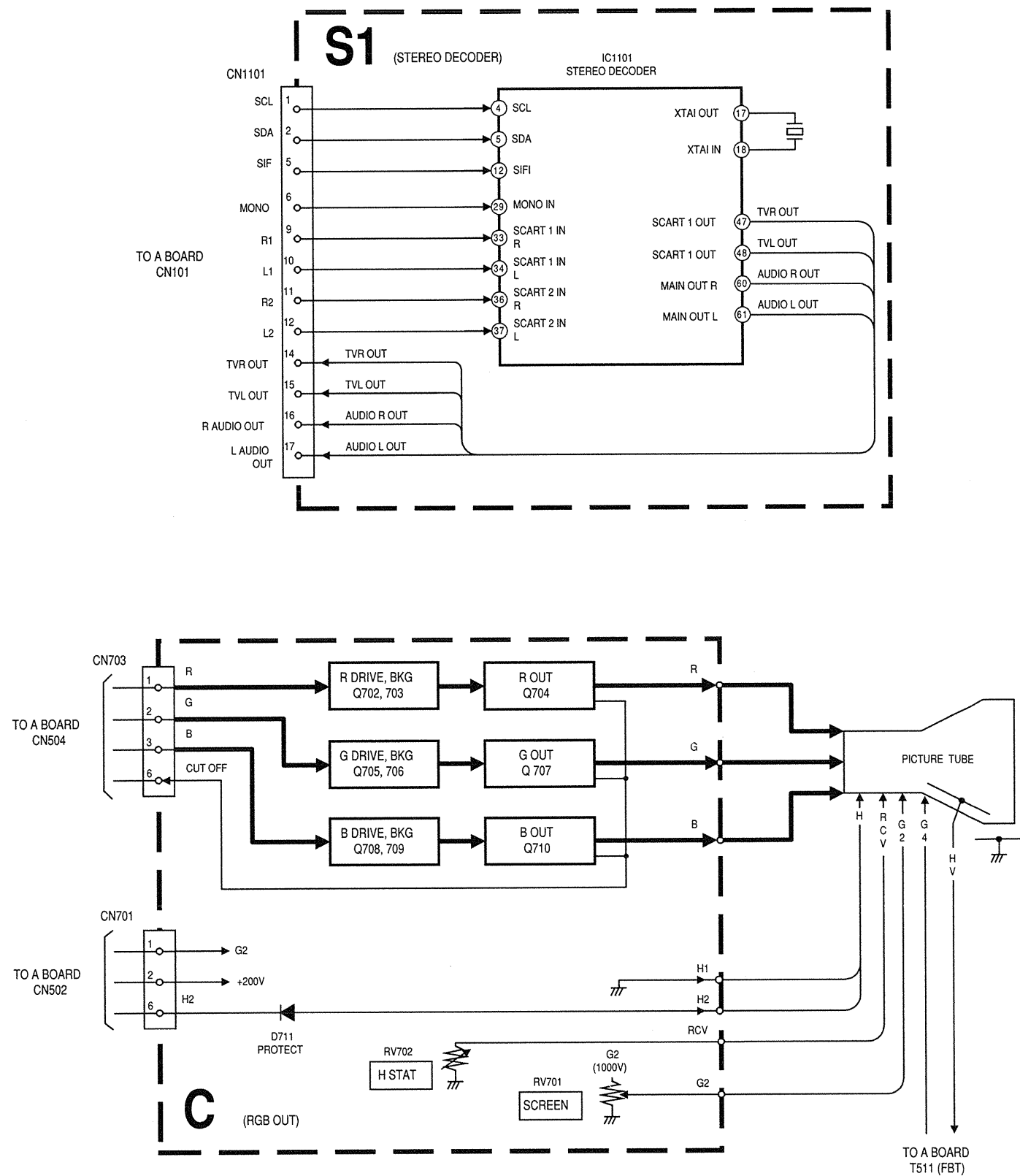
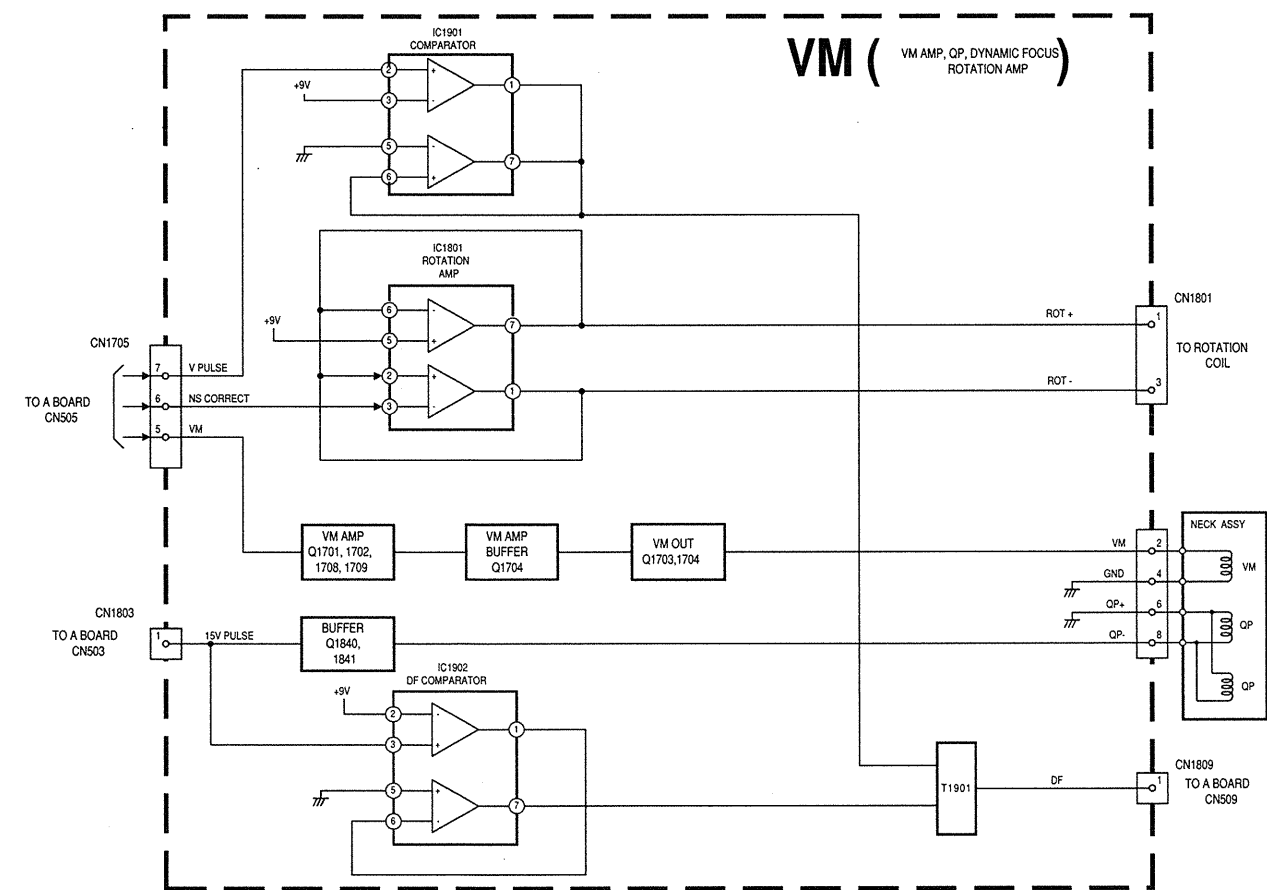
**Note:** To clear the error count data press '80' on the Remote commander.



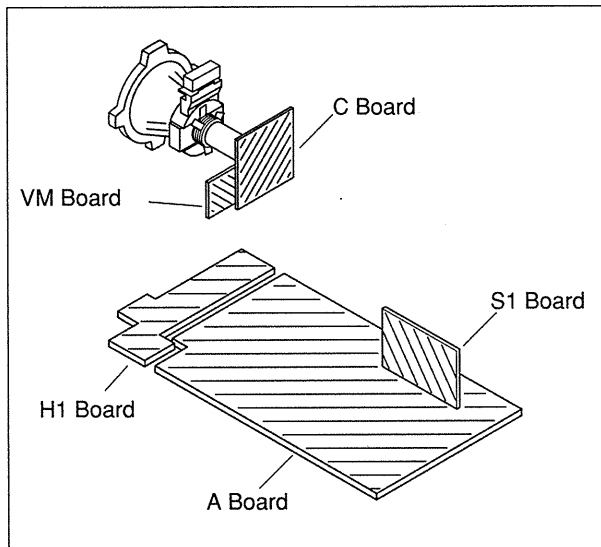
## 5-1 BLOCK DIAGRAMS (1)



5-1 BLOCK DIAGRAMS (2)



5-2. CIRCUIT BOARD LOCATION



5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

- Note :**
- All capacitors are in  $\mu\text{F}$  unless otherwise noted.
  - $\text{pF}$  :  $\mu\text{F}$  50WV or less are not indicated except for electrolytic types.
  - Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch : 5mm  
Electrical power rating : 1/4W

- Chip resistors are 1/10W
- All resistors are in ohms.  
 $k = 1000 \text{ ohms}$ ,  $M = 1000,000 \text{ ohms}$
- : nonflammable resistor.
- : fusible resistor.
- : internal component.
- : panel designation or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- All voltages are in Volts.
- Readings are taken with a 10Mohm digital mutimeter.
- Readings are taken with a color bar input signal.
- Voltage variations may be noted due to normal production tolerances.

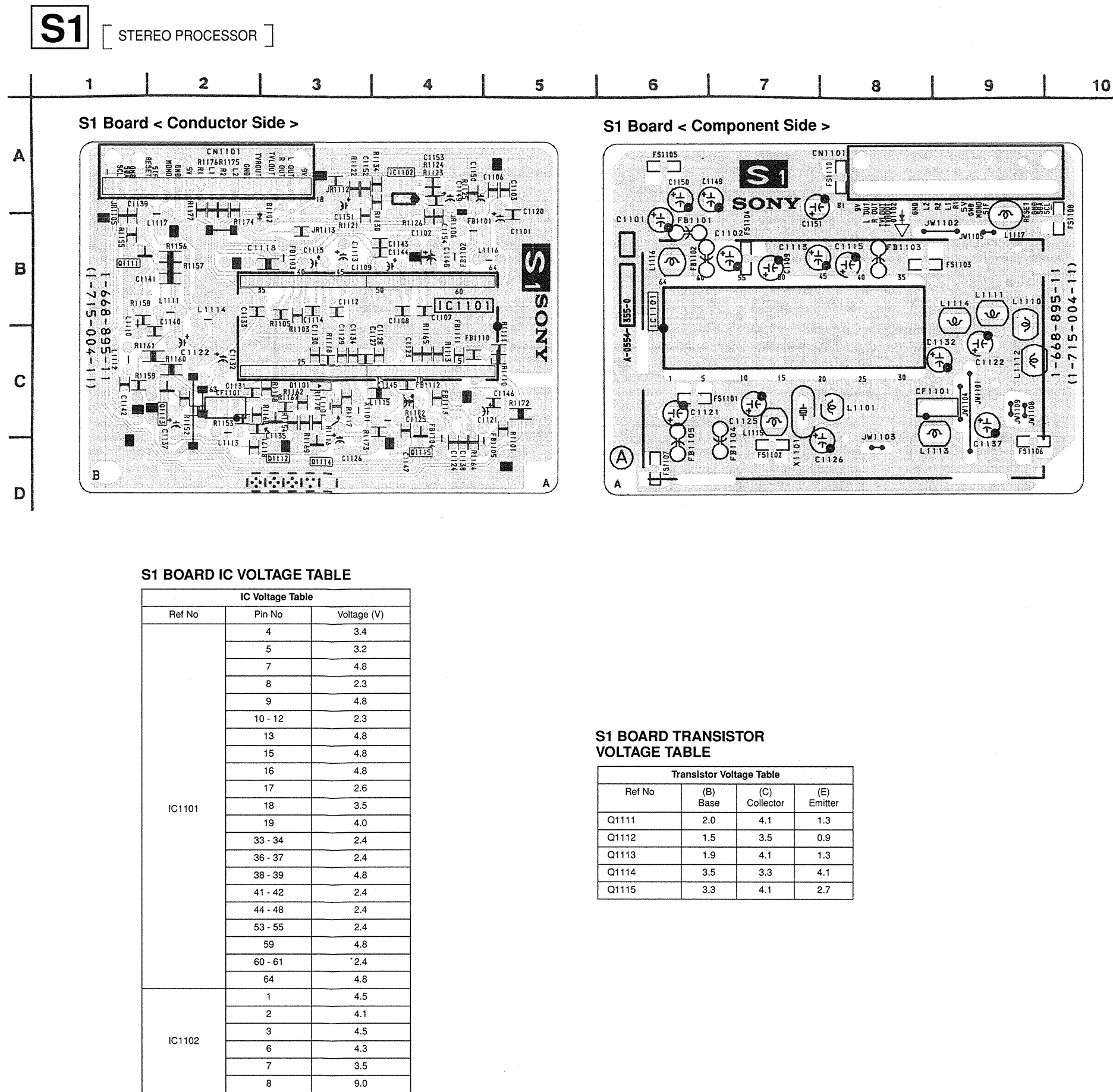
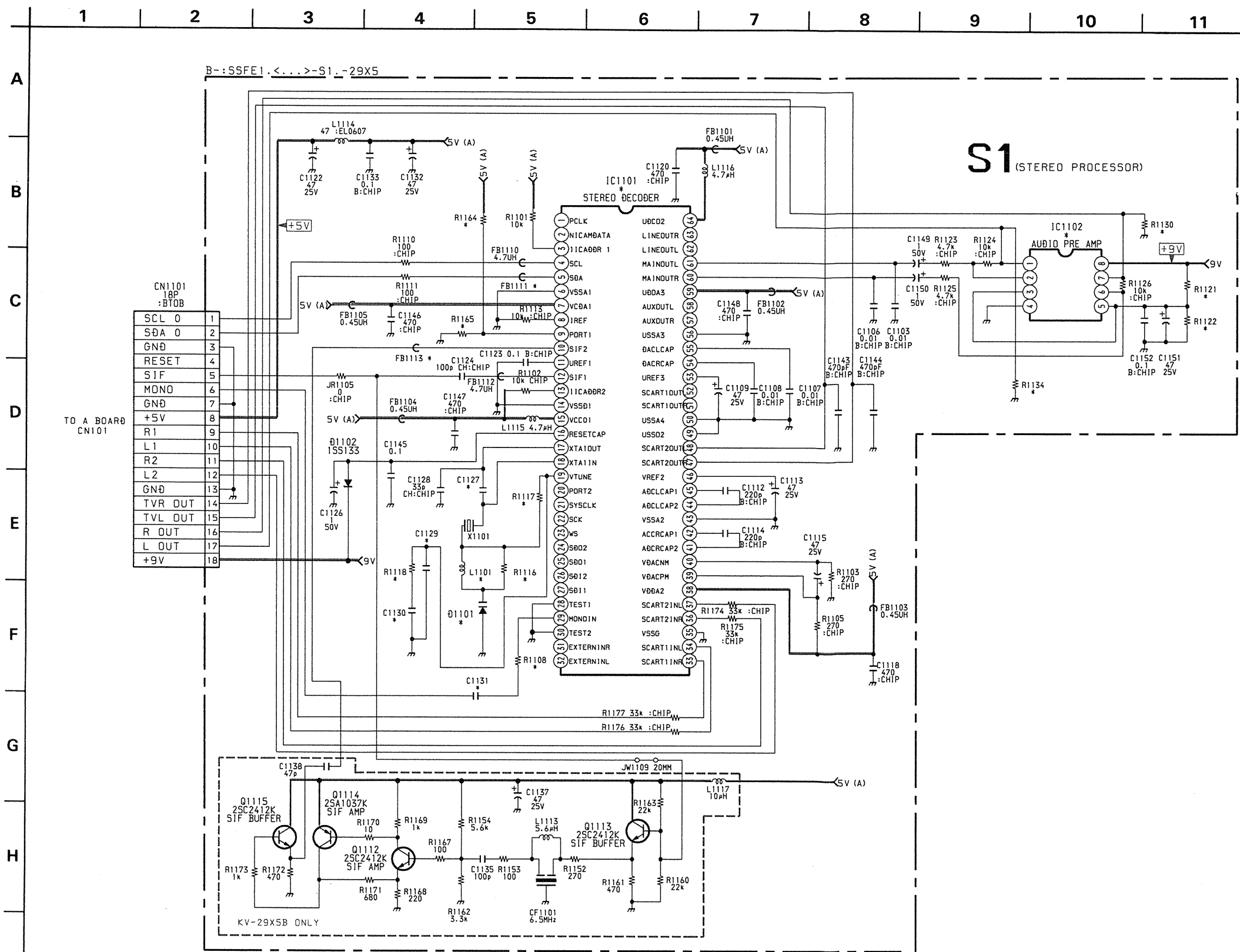
- : B + bus.
- : B - bus.
- : RF signal path.
- : earth - ground.
- : earth - chassis.

Reference Information

RESISTOR	RN	: METAL FILM
	RC	: SOLID
	FPRD	: NON FLAMMABLE CARBON
	FUSE	: NON FLAMMABLE FUSIBLE
	RS	: NON FLAMMABLE METAL OXIDE
	RB	: NON FLAMMABLE CEMENT
	RW	: NON FLAMMABLE WIREWOUND
		: ADJUSTMENT RESISTOR
COIL	LF-8L	: MICRO INDUCTOR
CAPACITOR	TA	: TANTALUM
	PS	: STYROL
	PP	: POLYPROPYLENE
	PT	: MYLAR
	MPS	: METALIZED POLYESTER
	MPP	: METALIZED POLYPROPYLENE
	ALB	: BIPOLAR
	ALT	: HIGH TEMPERATURE
	ALR	: HIGH RIPPLE

**Note:** The components identified by shading and marked  $\Delta$  are critical for safety. Replace only with the part numbers specified in the parts list.

**Note:** Les composants identifiés par une trame et par une marque  $\Delta$  sont d'une importance critique pour la sécurité. Ne les remplacer que par des pièces de numéro spécifié.



### S1 BOARD IC VOLTAGE TABLE

IC Voltage Table		
Ref No	Pin No	Voltage (V)
IC1101	4	3.4
	5	3.2
	7	4.8
	8	2.3
	9	4.8
	10 - 12	2.3
	13	4.8
	15	4.8
	16	4.8
	17	2.6
	18	3.5
	19	4.0
	33 - 34	2.4
	36 - 37	2.4
	38 - 39	4.8
	41 - 42	2.4
	44 - 48	2.4
	53 - 55	2.4
59	4.8	
60 - 61	2.4	
64	4.8	
IC1102	1	4.5
	2	4.1
	3	4.5
	6	4.3
	7	3.5
	8	9.0

### S1 BOARD TRANSISTOR VOLTAGE TABLE

Ref No	(B) Base	(C) Collector	(E) Emitter
Q1111	2.0	4.1	1.3
Q1112	1.5	3.5	0.9
Q1113	1.9	4.1	1.3
Q1114	3.5	3.3	4.1
Q1115	3.3	4.1	2.7

**S1 BOARD \* MARK**

Ref	29X5A	29X5B	29X5D	29X5E	29X5K	29X5L	29X5R	29X5U
C1127	22PF	33PF	22PF	33PF	22PF	33PF	22PF	33PF
C1129	-	0.03UF	-	0.03UF	-	0.03UF	-	0.33UF
C1130	-	0.33UF	-	0.33UF	-	0.33UF	-	0.33UF
C1131	0.47UF	0.47UF	0.47UF	-	0.47UF	-	0.47UF	-
D1101	0	BB135	0	BB135	0	BB135	0	BB135
FB1111	6.8UH	4.7UH	6.8UH	4.7UH	6.8UH	4.7UH	6.8UH	4.7UH
FB1113	-	4.7UH	-	-	-	-	-	-
IC1101	TD9870	TD9875P	TD9870	TD9875P	TD9870	TD9875P	TD9870	TD9875P
IC1102	LM358DR-E2	NJM4558M-TE2	LM358DR-E2	NJM4558M-TE2	LM358DR-E2	NJM4558M-TE2	LM358DR-E2	NJM4558M-TE2
L1101	-	2.7UH	-	2.7UH	-	2.7UH	-	2.7UH
R1108	2.2K	2.2K	2.2K	-	2.2K	-	2.2K	-
R1116	0	39K	0	39K	0	39K	0	39K
R1117	-	10K	-	10K	-	10K	-	10K
R1118	-	20K	-	20K	-	20K	-	20K
R1121	4.7K	10K	4.7K	10K	4.7K	10K	4.7K	10K
R1122	4.7K	10K	4.7K	10K	4.7K	10K	4.7K	10K
R1130	10K	-	10K	-	10K	-	10K	-
R1134	10K	-	10K	-	10K	-	10K	-
R1164	-	10K	-	10K	-	10K	-	10K
R1165	0	-	0	-	0	-	0	-



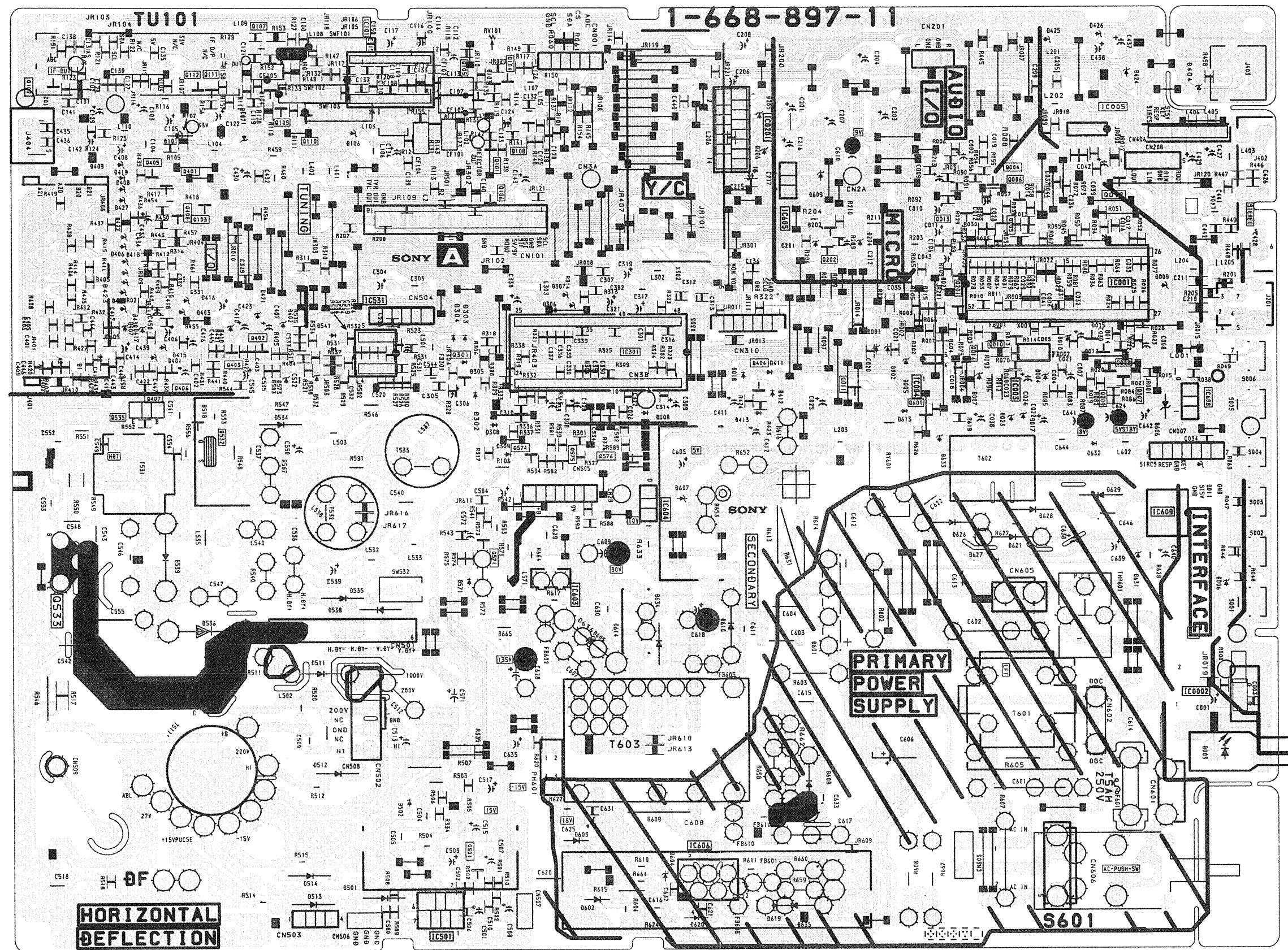
## A BOARD

IC		DIODE	
IC001	C - 11	D001	D - 8
IC003	D - 10	D002	D - 8
IC004	D - 9	D004	D - 10
IC005	B - 11	D007	D - 9
IC101	A - 4	D008	D - 7
IC201	B - 7	D009	C - 11
IC301	D - 6	D010	D - 10
IC501	I - 4	D011	E - 12
IC531	C - 4	D012	D - 11
IC603	F - 6	D014	D - 11
IC604	E - 6	D015	D - 11
IC605	C - 8	D017	E - 10
IC606	I - 7	D018	D - 7
IC608	D - 12	D023	E - 10
IC609	E - 11	D101	B - 2
TRANSISTOR		D104	A - 3
Q004	B - 9	D201	C - 8
Q005	C - 10	D202	C - 8
Q006	B - 9	D204	C - 9
Q007	D - 10	D205	B - 8
Q008	D - 11	D206	B - 7
Q009	D - 11	D306	C - 6
Q010	D - 10	D307	C - 6
Q011	D - 8	D308	E - 5
Q012	B - 11	D309	E - 5
Q013	B - 9	D405	C - 1
Q101	B - 5	D406	C - 2
Q107	A - 3	D407	D - 2
Q109	B - 2	D409	B - 1
Q110	B - 2	D415	D - 2
Q111	A - 2	D417	D - 2
Q112	A - 2	D422	C - 1
Q202	C - 8	D423	C - 1
Q401	B - 2	D427	B - 2
Q405	B - 2	D501	I - 4
Q408	B - 2	D502	H - 4
Q501	I - 5	D511	G - 3
Q532	E - 2	D512	H - 3
Q533	F - 1	D513	I - 3
Q535	D - 1	D514	I - 3
Q571	F5	D534	D - 3
Q574	E - 5	D535	F - 4
Q575	E - 6	D536	F - 2
Q576	E - 6	D538	F - 4

D539	F - 2
D571	F - 5
D601	G - 8
D602	I - 6
D603	H - 6
D605	G - 6
D608	H - 8
D610	F - 7
D613	E - 9
D614	G - 6
D619	I - 8
D621	F - 10
D626	F - 9
D627	F - 9
D628	E - 10
D629	E - 11
D631	F - 11
D632	E - 10
D633	E - 9

**A** POWER SUPPLY,  
DEFLECTION, TUNING, PROCESSOR  
VIDEO SIGNAL PROCESSOR, AV IN/OUT

## A Board



**NOTE:**  
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

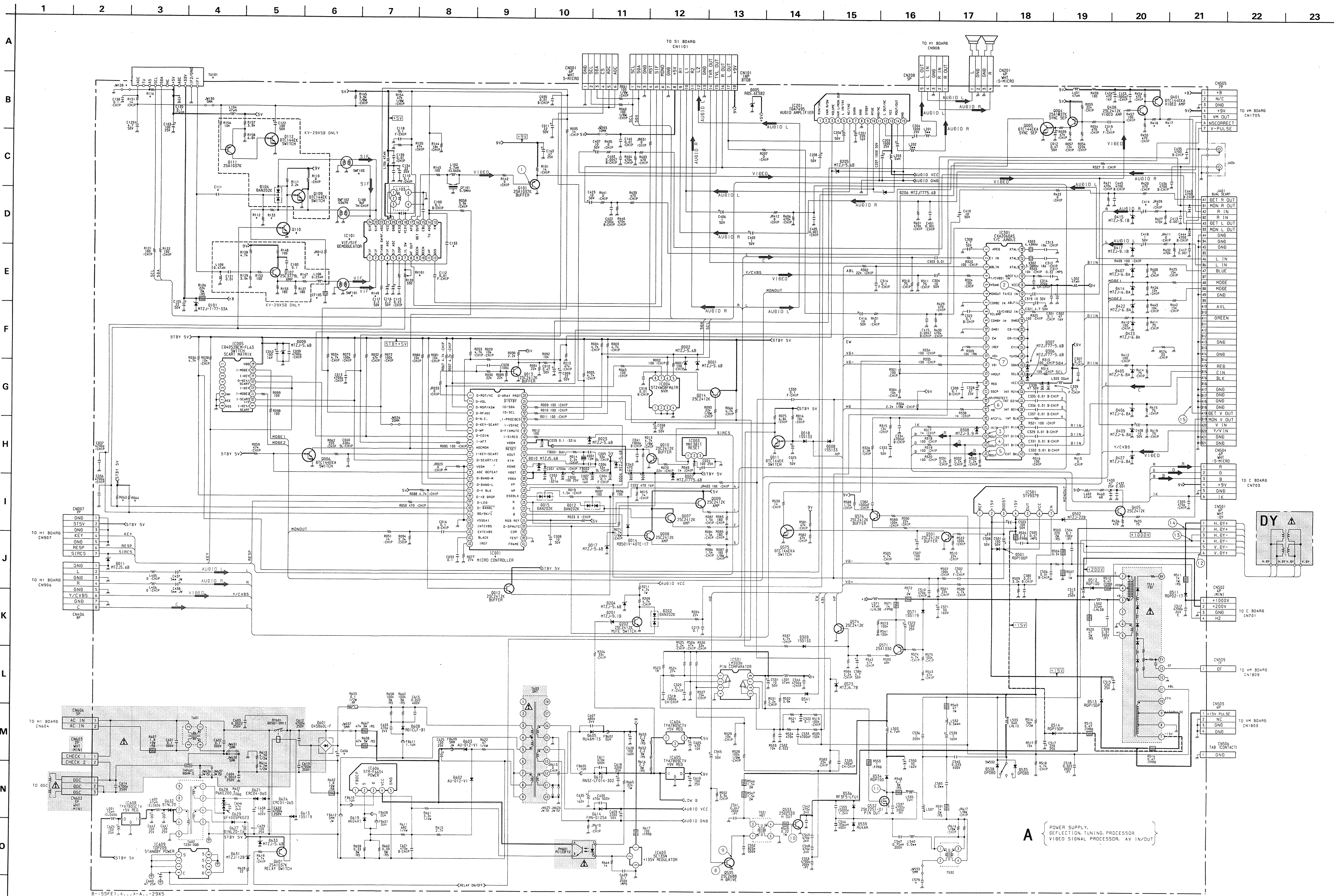
A BOARD TRANSISTOR  
VOLTAGE TABLE

Transistor Voltage Table			
Ref No	(B) Base	(C) Collector	(E) Emitter
Q004	4.7	0.7	4.9
Q005	0.3	4.8	-
Q006	-	2.0	-
Q007	-	4.9	-
Q008	-	4.9	-
Q009	-	4.9	-
Q010	0.6	-	-
Q011	0.5	-	-
Q012	-	4.8	-
Q101	2.0	-	2.6
Q109	-	4.7	-
Q110	4.3	-	-
Q111	2.3	2.9	2.9
Q112	2.9	-	-
Q202	0.6	-	-
Q401	8.0	3.4	8.6
Q405	4.4	8.8	3.7
Q408	2.6	8.0	2.0
Q532	7.3	3.1	-
Q533	-0.2	-152.0	-
Q535	-0.7	92.0	-
Q571	134.2	-	134.4
Q574	-	2.0	-
Q576	3.4	6.7	2.8
Q601	4.0	3.6	4.8

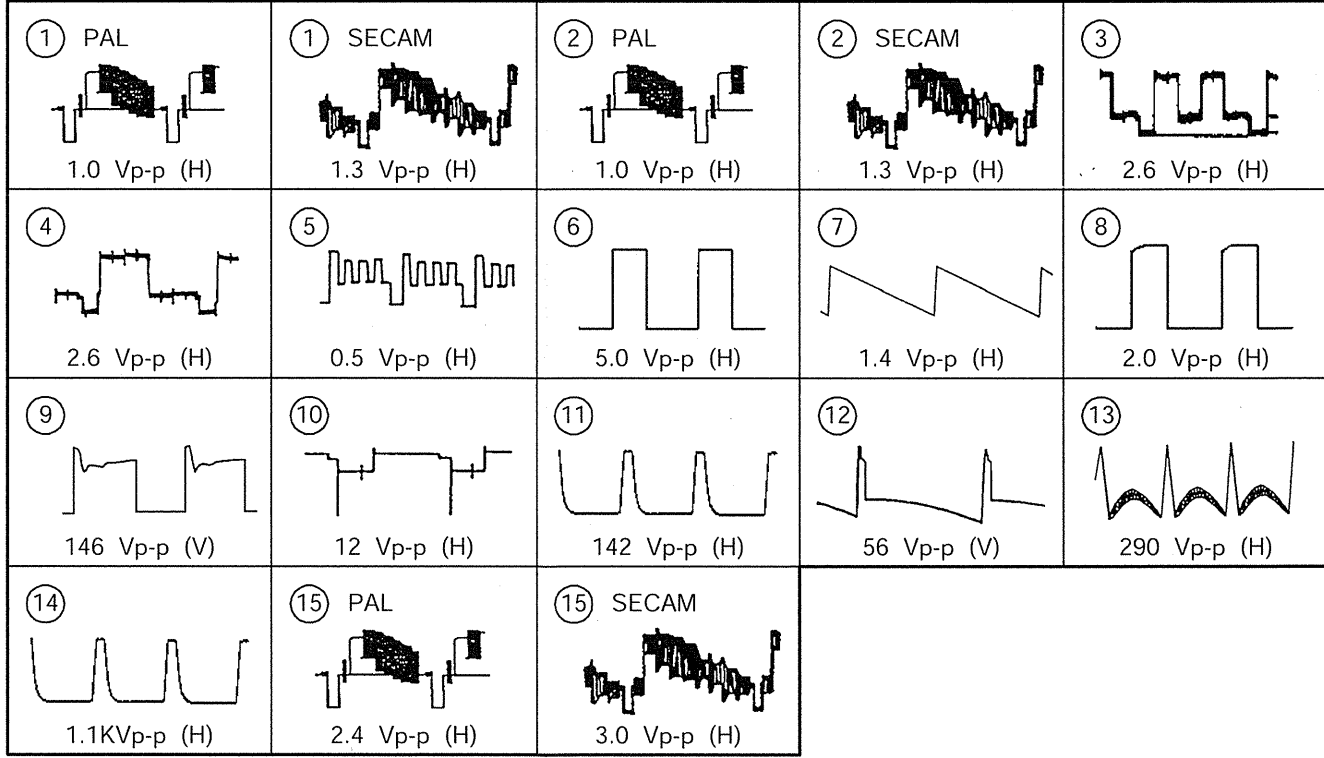
## A BOARD IC VOLTAGE TABLE

IC Voltage Table					
Ref No	Pin No	Voltage (V)	Ref No	Pin No	Voltage (V)
IC001	4	0.8	IC101	1 - 2	3.2
	6	3.2		3	4.8
	7 - 8	4.8		4	3.0
	9	0.3		5	2.8
	10	2.0		6	2.7
	11	1.5		7	3.9
	12	4.7		8	2.2
	19	3.6		12	2.0
	20	4.3		15	1.5
	21	4.8		17	0.3
	24	2.5		18 - 19	2.6
	25	2.1		21	4.7
	26	2.4		22	0.9
	30	4.8		23 - 24	3.2
	31	5.0	IC201	1	3.3
	Q109	-		2	5.0
	Q110	4.3		3	4.3
	Q111	2.3		4	5.0
	Q112	2.9		6	4.4
	Q202	0.6		8	4.5
	Q401	8.0		11	3.9
	Q405	4.4		12	2.4
	Q408	2.6		13	3.5
	Q532	7.3		14	3.4
	Q533	-0.2		15	5.6
	Q535	-0.7		16	7.6
	Q571	134.2		18	1.3
	Q574	-		19	2.4
	Q576	3.4		20	3.8
	Q601	4.0		21	1.6
IC004	7	3.3	IC301	22 - 24	1.5
	8	3.2		26 - 28	4.5
	9	3.2		30	4.5
	10	4.7		31 - 32	4.4
IC005	12	4.7		33	8.1
	13	1.5	IC501	34 - 35	3.3
	14	4.7		41	5.0
	16	4.7		42	8.6
IC009	1	3.3		43	5.0
	2	5.0		44	8.8
	3	4.3		45	5.2
	4	5.0		48	1.5
IC006	5	2.8	IC531	1	15.3
	6	2.7		5	15.3
	7	3.9		7	15.3
	8	2.2		10	4.5
IC008	1	15.3		12	15.3
	5	15.3		13	31.2
	7	15.3		14	15.3
	10	4.5		1	1.4
IC010	1	1.4		2	14.0
	2	14.0		3	-13.0
	3	-13.0		4	-14.0
	4	-14.0		5	0.2
IC011	5	0.2		6	14.5
	6	14.5		7	1.4
	7	1.4		1	1.6
	1	1.6		2	1.7
IC012	2	1.7		3	1.9
	3	1.9		5	2.8
	5	2.8		6	2.0
	6	2.0		7	7.3
IC013	7	7.3		8	8.8
	8	8.8		1 - 2	-60.0
	1 - 2	-60.0		4	-51.3
	4	-51.3		4	-58.0





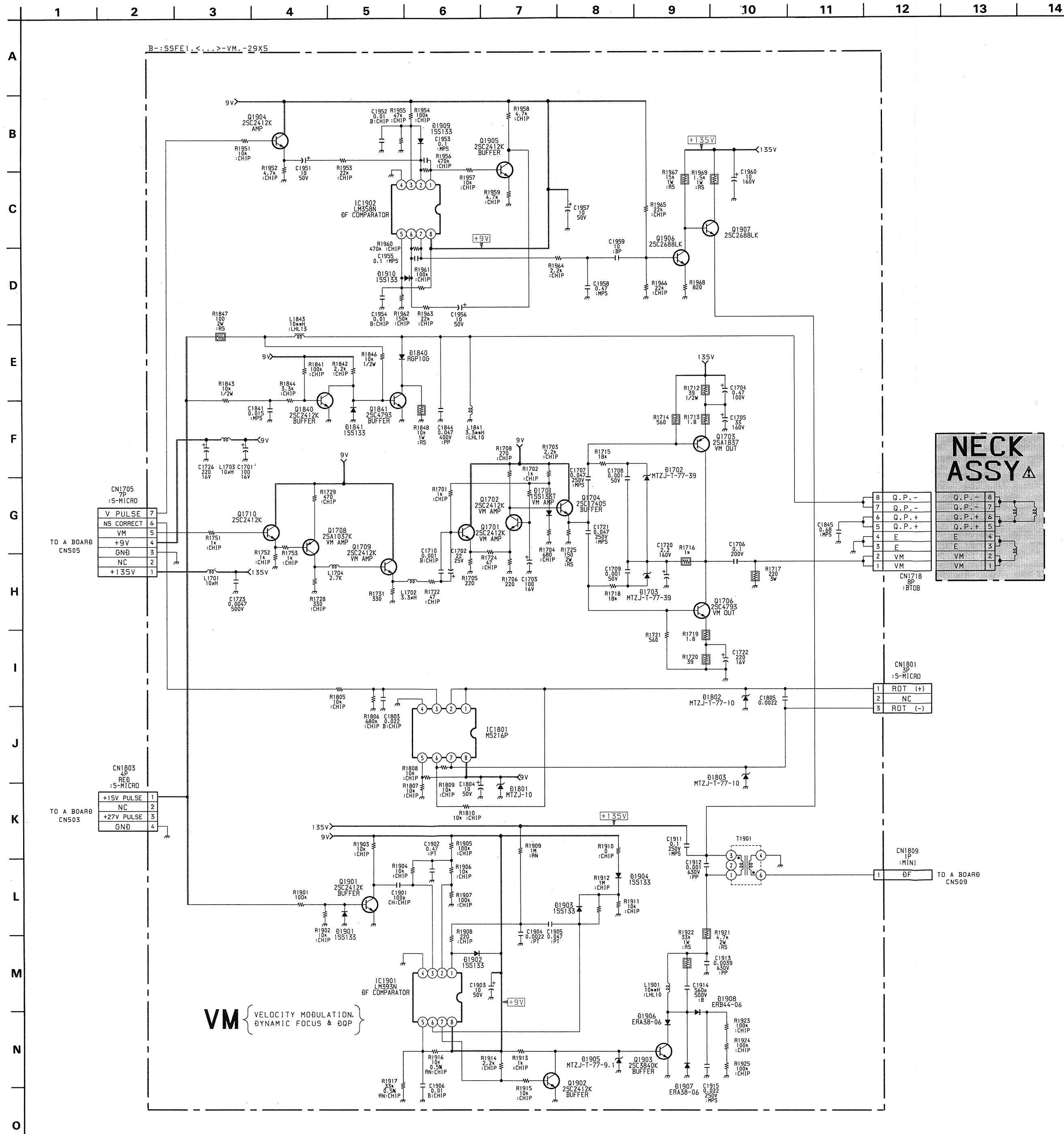
# WAVEFORMS A BOARD



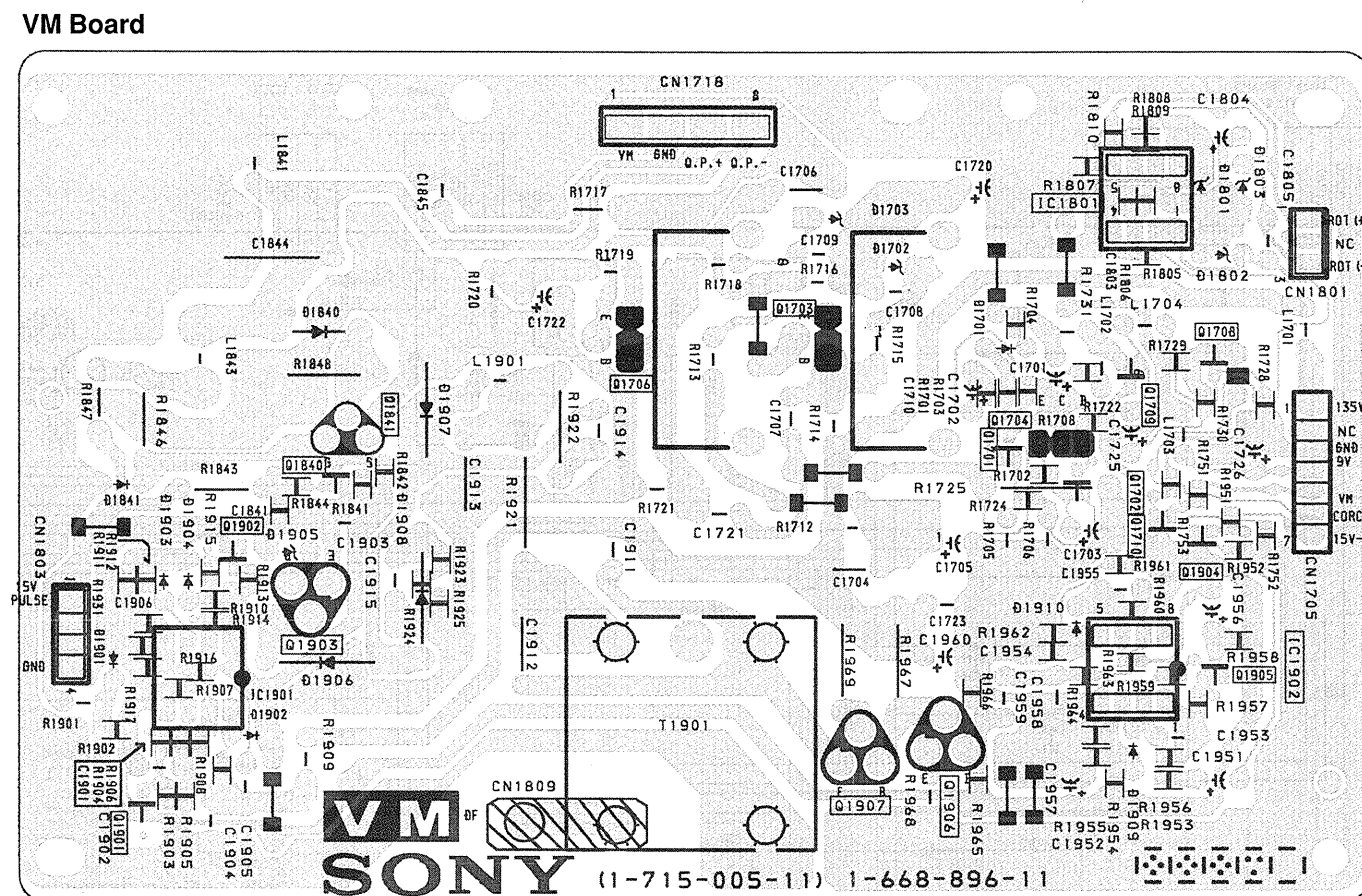
# A BOARD \* MARK

Ref	29X5A	29X5B	29X5D	29X5E	29X5K	29X5L	29X5R	29X5U
C111	0	0.1UF	0	0	0	0	0	0
C133	-	1UF	-	-	-	-	-	-
C14	1UF	0.001UF	1UF	1UF	0.001UF	1UF	1UF	1UF
C579	-	LEAD JUMPER (5.0MM)	-	-	LEAD JUMPER (5.0MM)	-	-	LEAD JUMPER (5.0MM)
C66	330UF	330UF	330UF	330UF	-	330UF	330UF	330UF
CF105	-	TRAP CERAMIC	-	-	-	-	-	TRAP CERAMIC
D541	LEAD JUMPER	-	LEAD JUMPER	LEAD JUMPER	-	LEAD JUMPER	LEAD JUMPER	-
IC001	SA45497PS/ MIA/040	SA45497PS/ MIA/038	SA45497PS/ MIA/040	SA45497PS/ MIA/038	SA45497PS/ MIA/038	SA45497PS/ MIA/038	SA45497PS/ MIA/038	SA45497PS/ MIA/038
IC101	TD9817/V	TD9817/V1	TD9817/V	TD9817/V	TD9817/V1	TD9817/V1	TD9817/V	TD9817/V
JR012	0	-	0	0	0	0	0	0
JW128	47K	LEAD JUMPER (5.0MM)	47K	LEAD JUMPER (5.0MM)	47K	LEAD JUMPER (5.0MM)	LEAD JUMPER (5.0MM)	LEAD JUMPER (5.0MM)
Q110	-	DTC144EK-T146	-	-	-	-	-	-
RO63	-	4.7K	-	-	-	-	-	-
RO64	-	4.7K	-	-	-	-	-	-
R112	-	2.2K	-	-	-	-	-	-
R116	47K	-	47K	47K	47K	47K	-	-
R133	0	-	0	0	0	0	0	0
R149	-	1K	-	-	-	-	-	-
R417	75	75	75	75	75	75	75	68
RV18	470 1/4W	470 1/4W	470 1/4W	470 1/4W	470 1/4W	470 1/4W	470 1/4W	470 1/4W
SWF101	1-767-874-11	1-767-874-11	1-767-874-11	1-767-874-11	1-767-874-11	1-767-874-11	1-767-874-11	1-767-874-11
SWF103	-	FILTER, SURFACE	-	-	-	-	-	-
TU101	TELE9-001A	TELE9-001A	TELE9-001A	TELE9-001A	BTP-AC411	TELE9-001A	BTP-AC402	BTP-AU602





**VM** { VELOCITY MODULATION, DYNAMIC FOCUS & DOP }



**VM BOARD IC VOLTAGE TABLE**

Ref No	Pin No	Voltage (V)
IC1801	1-3	5.0
	5-6	4.3
	7	3.7
	8	8.0
IC1901	1	1.7
	2	4.0
	3	4.5
	5	6.7
	6	6.8
	7	3.6
	8	8.0
	1-3	2.8
IC1902	5-6	5.2
	7	5.0
	8	8.0

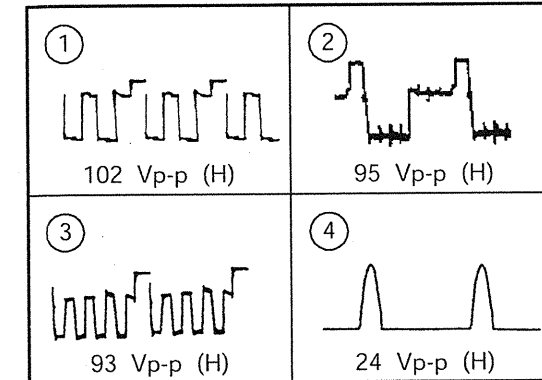
**VM BOARD TRANSISTOR VOLTAGE TABLE**

Ref No	(B) Base	(C) Collector	(E) Emitter
Q1701	2.4	8.7	1.8
Q1702	2.4	6.5	1.8
Q1703	133.4	52.0	133.8
Q1704	8.7	8.5	5.8
Q1706	0.8	52.0	0.5
Q1708	5.0	2.1	5.6
Q1709	5.4	8.0	4.7
Q1710	5.6	8.0	5.0
Q1840	-0.3	4.7	-
Q1901	0.4	1.3	-
Q1902	0.4	0.3	-
Q1903	0.3	62.0	-
Q1904	-	8.0	0.1
Q1905	2.7	6.5	2.2
Q1906	4.0	68.8	3.4
Q1907	68.7	122.2	68.2
Q1841	4.7	18.0	-

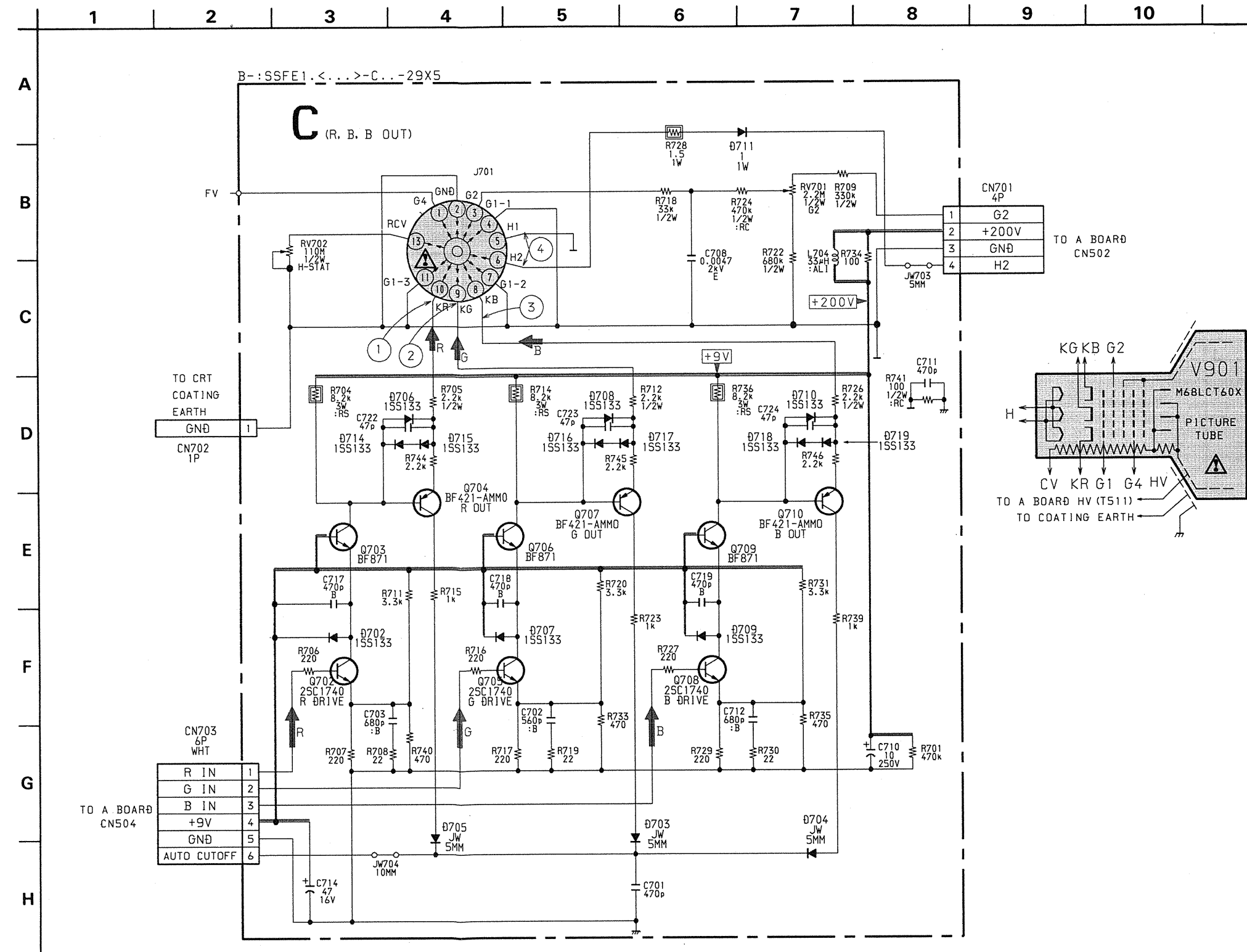
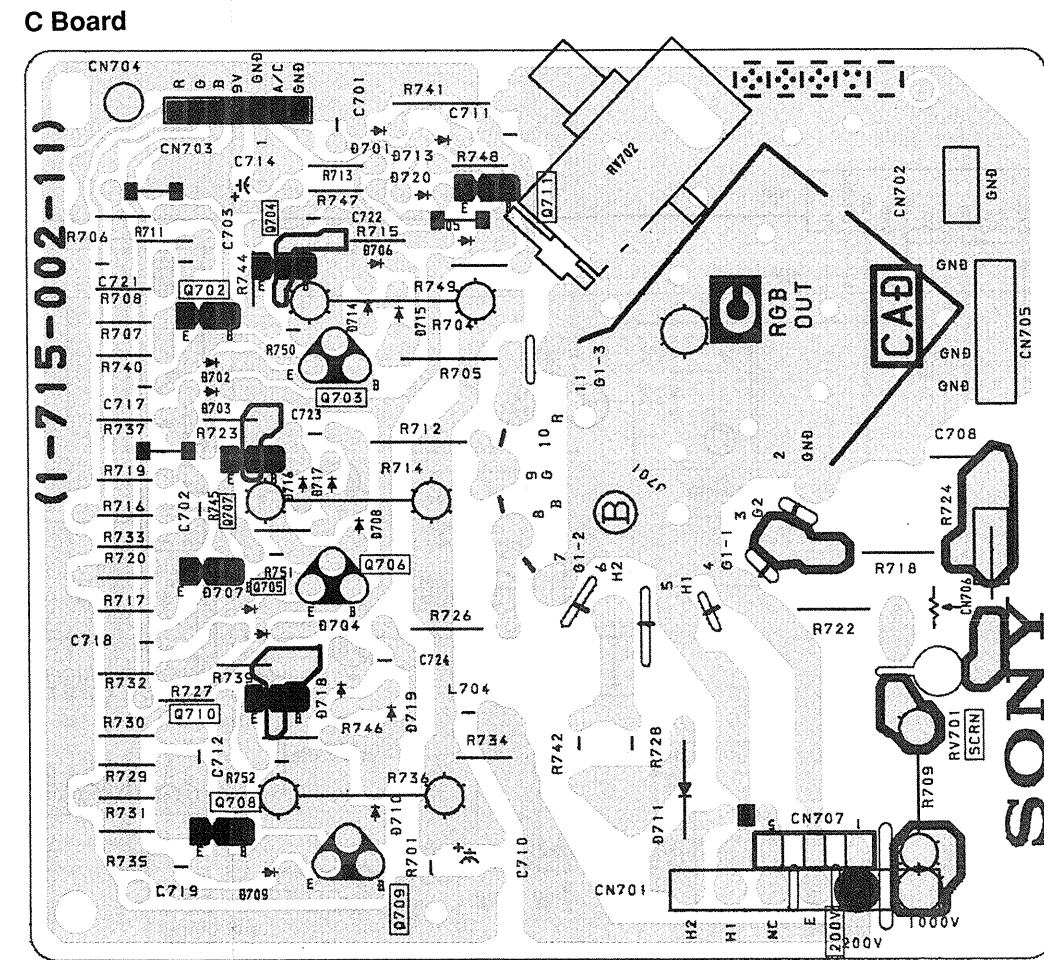
**C BOARD TRANSISTOR VOLTAGE TABLE**

Ref No	(B) Base	(C) Collector	(E) Emitter
Q702	1.5	8.3	1.1
Q703	8.8	169.8	8.3
Q704	169.5	1.9	209.5
Q705	1.5	8.3	1.1
Q706	8.8	170.7	8.3
Q707	170.5	1.9	215.7
Q708	1.5	8.3	1.0
Q709	8.9	171.3	8.3
Q710	171.2	1.9	206.3

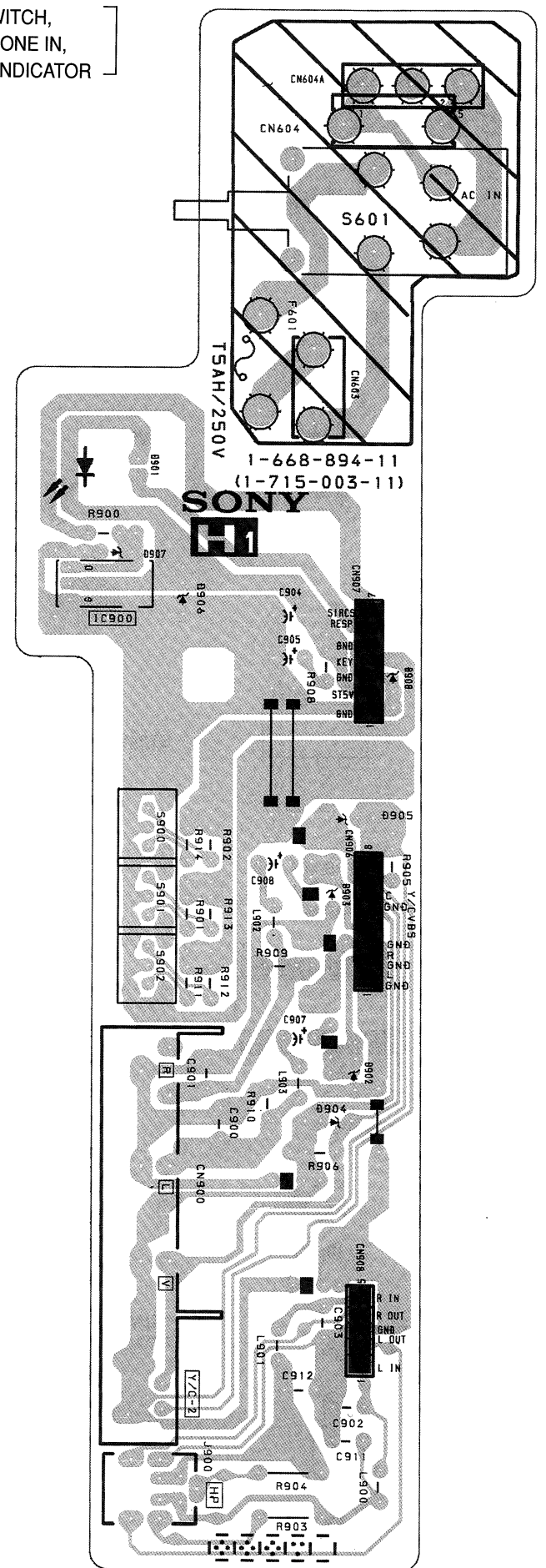
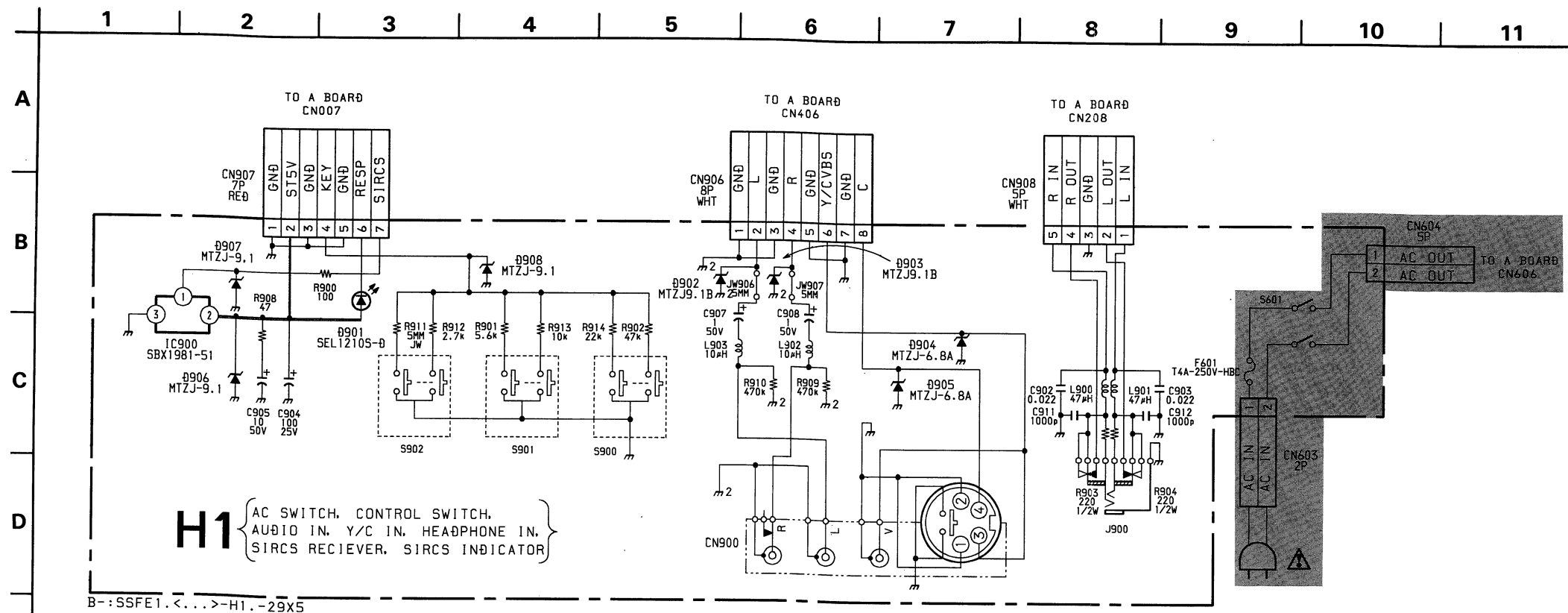
**WAVEFORMS C BOARD**



**C** { RGB OUT }

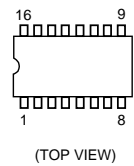


**H1** AC SWITCH, CONTROL SWITCH,  
AUDIO IN, Y/C IN, HEADPHONE IN,  
SIRCS RECIEVER, SIRCS INDICATOR

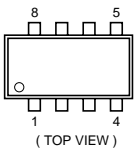


5-4 SEMICONDUCTORS

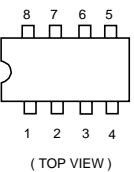
CD4052BCM



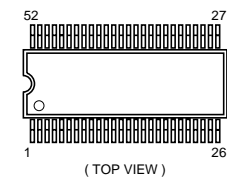
LM358DR-EZ  
NJM4558M-TE2  
NJM2903D



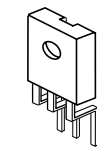
LM393P  
TDA2822M  
TEA2124



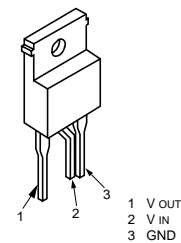
SAA5497PS/MIA/038  
SAA5497PS/MIA/039  
SAA5497PS/MIA040



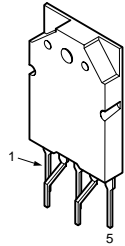
SBX1981-51



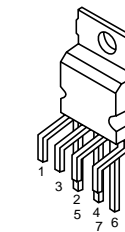
SE-135N  
SE135N-LF12



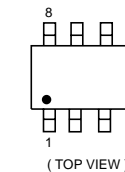
STR-F6654



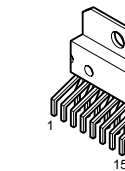
STV9379



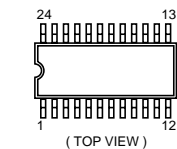
ST24W08FM6TR



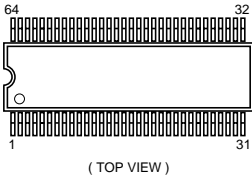
TDA7495



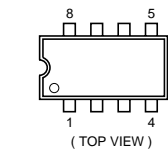
TDA9818-V1  
TDA9817-V1



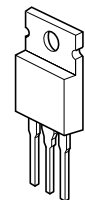
TDA9875  
TDA9870



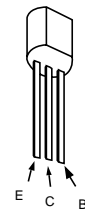
TOP209P



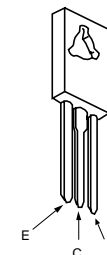
TYA7805CTV  
TYA7809CTV



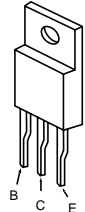
BF421-AMMO  
2SA1091-O



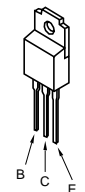
2SC688-LK



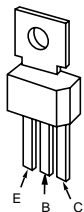
2SA1837



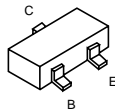
2SC4793



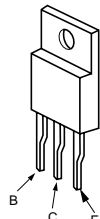
BF871-127



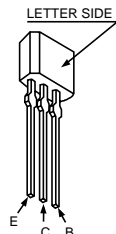
DTA144ESA  
DTA144ESA-TP  
DTC114EK  
DTC114EKA-T146  
DTC143TKA-T146  
DTC144EKA-T-146R  
2SA1037K-T-146-  
R2SA1162-G  
2SC2412K-QR  
2SC2412K-T-146-R



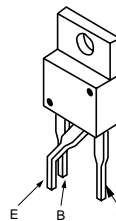
IRF614



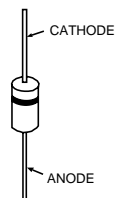
2SA933AS-QRT  
2SA933AS-RT  
2SC1740S-RT



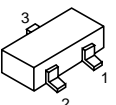
2SK2251-01-F19



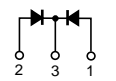
AK04-V1  
AU-012-V1  
BYD33G  
BYD33G-  
AMMO  
DINL20-TR  
ERB44-06TP1  
EG-1Z-V1  
EL1Z  
ERD28-06S



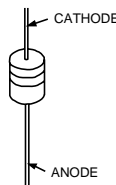
ERD28-08S  
ERC06-15  
FMN-G12S  
RG1CLF-B1  
RGP10GPKG23  
RU3YX-LF-C4  
RU3YX-V1  
RU-4AM-T3  
1SS292T-77



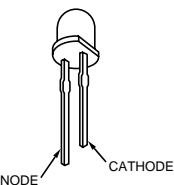
DAN202K  
DAN202K-T146



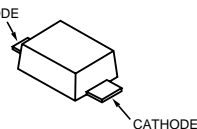
ERA81-004TP1  
ERA83-006  
MTZJ-T-77-3.9B  
MTZJ-T-77-5.6B  
MTZJ-T-77-5.6C  
MTZJ-T-77-6.8A  
MTZJ-T-77-6.8C  
MTZJ-T-77-7.5C  
MTZJ-T-77-9.1A  
MTZJ-T-77-9.1A  
MTZJ-T-77-10



SEL12108-D



UF4005PK623

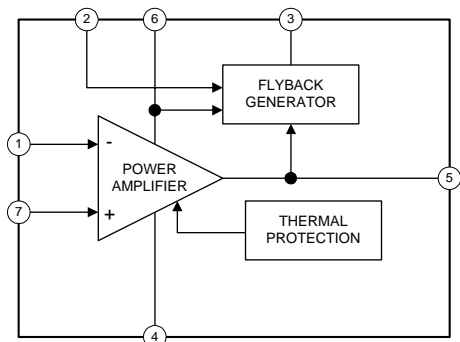


MTZJ-T-77-33A  
MTZJ-33C  
MTZJ-7.5B  
RD3.9ES-B2  
RD5.6ESB2  
RD6.8ES-B2  
RD7.5ESB2  
RD9.1ES-B3  
1SS119-25TD  
1SS133T-77

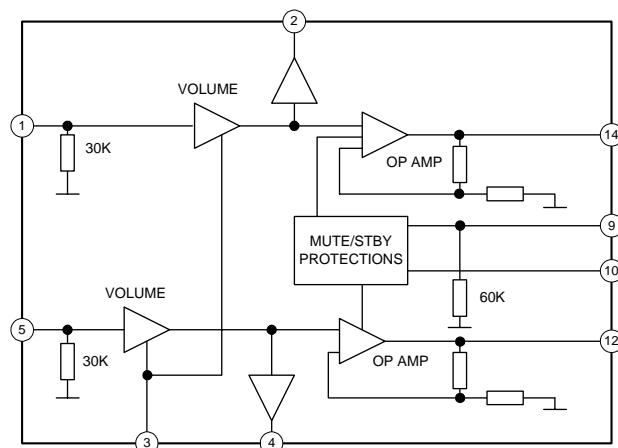


## 5-5. IC BLOCK DIAGRAMS

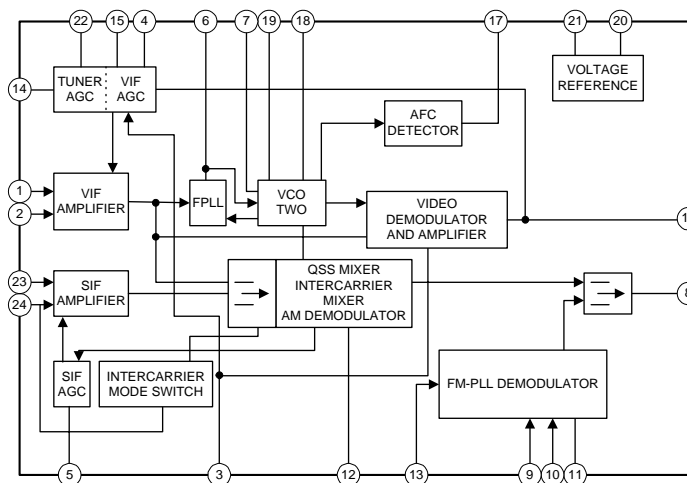
A BOARD IC501 STV 9379



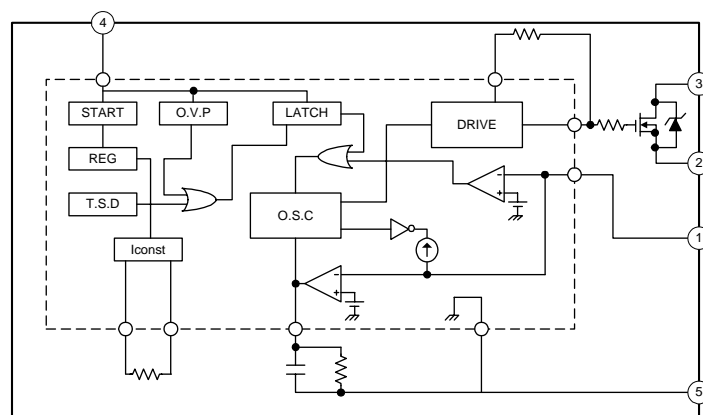
A BOARD IC201 TDA7495



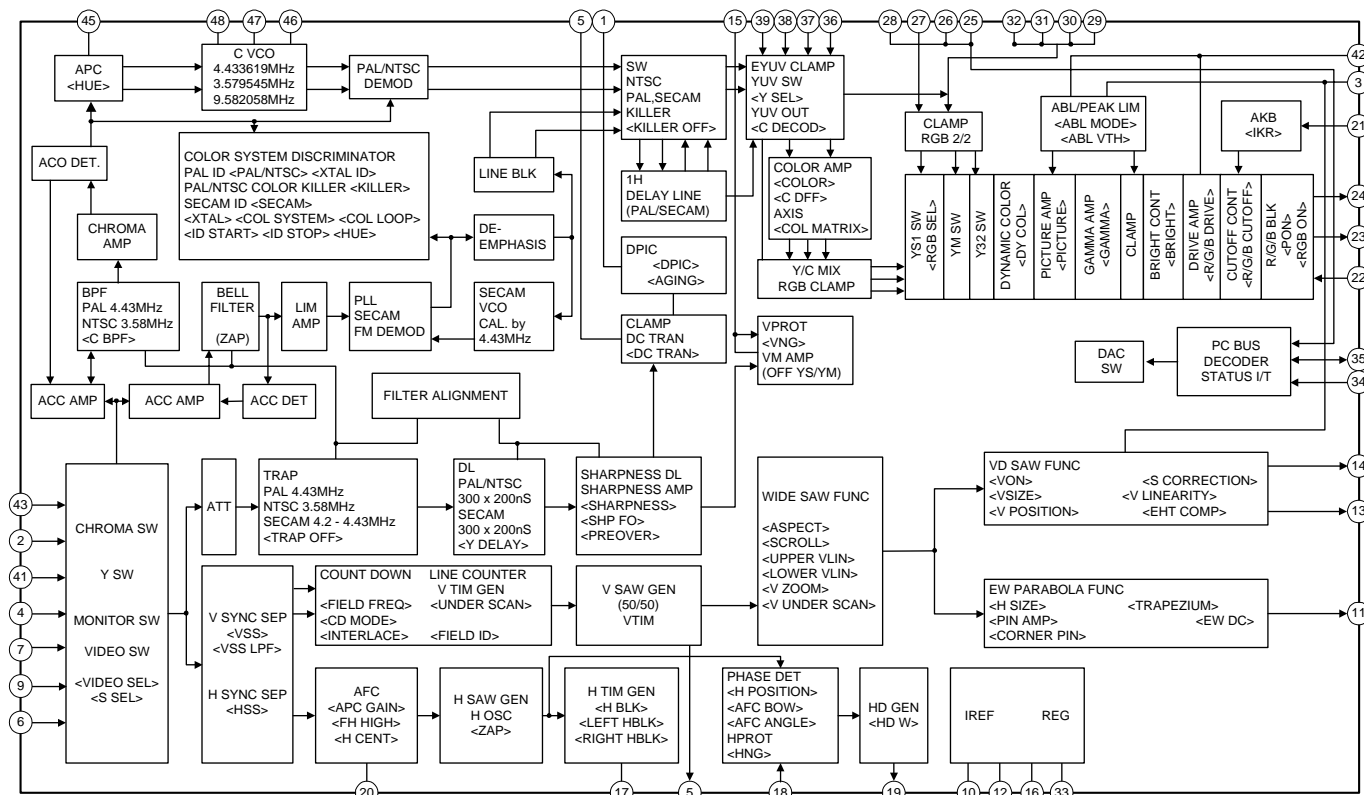
A BOARD IC101 TDA9817/V1



A BOARD IC606 STR-F6654



A BOARD IC301 CXA2060AS



## SECTION 6 EXPLODED VIEWS

### NOTE :

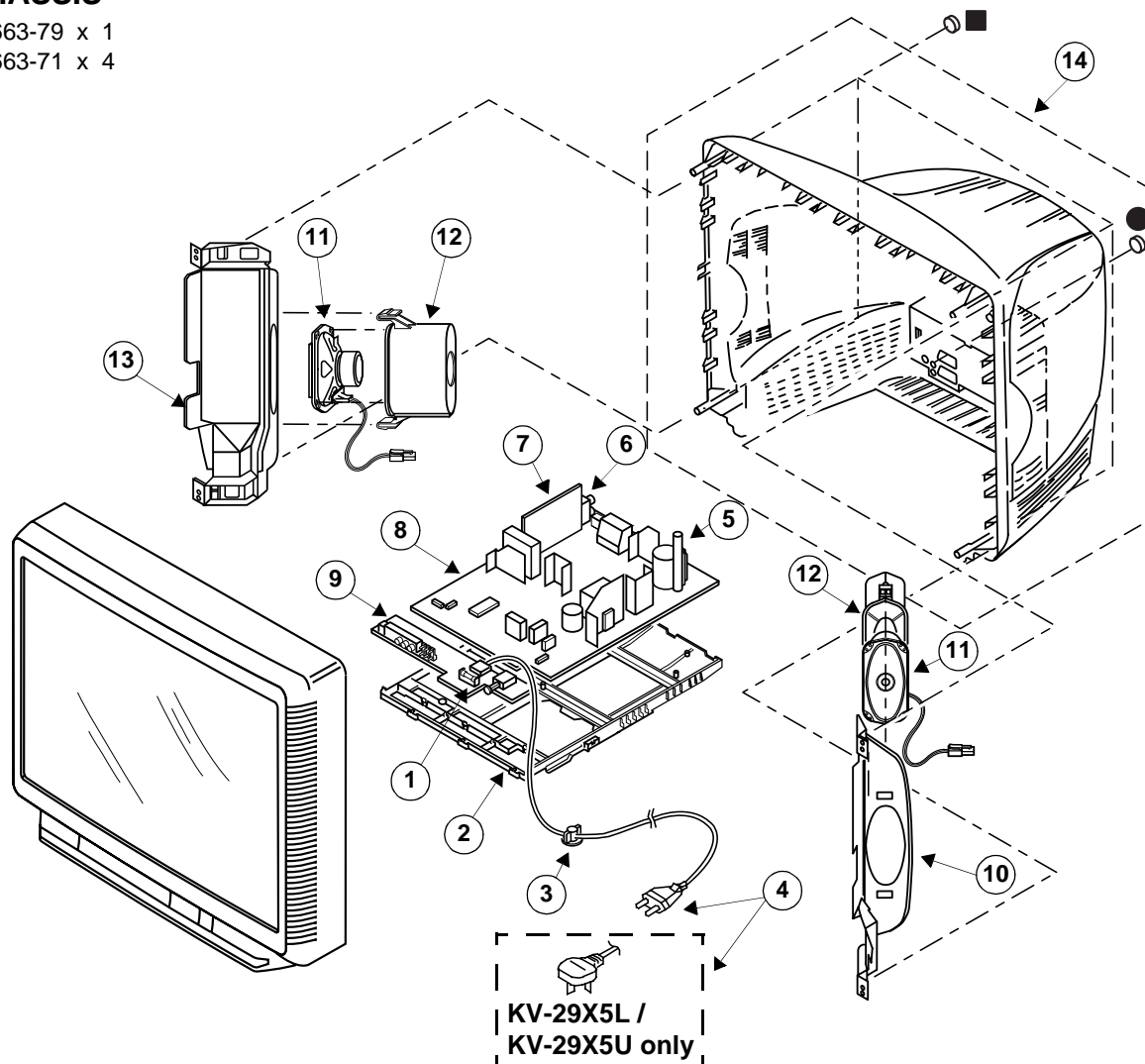
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remarks column.
- Items marked “\*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

**Note :** Les composants identifiés par une trame et par une marque  $\Delta$  sont d'une importance critique pour la sécurité. Ne les remplacer que par des pièces du numéro spécifié.

**Note :** The components identified by shading and marked  $\Delta$  are critical for safety. Replace only with the part numbers specified in the parts list.

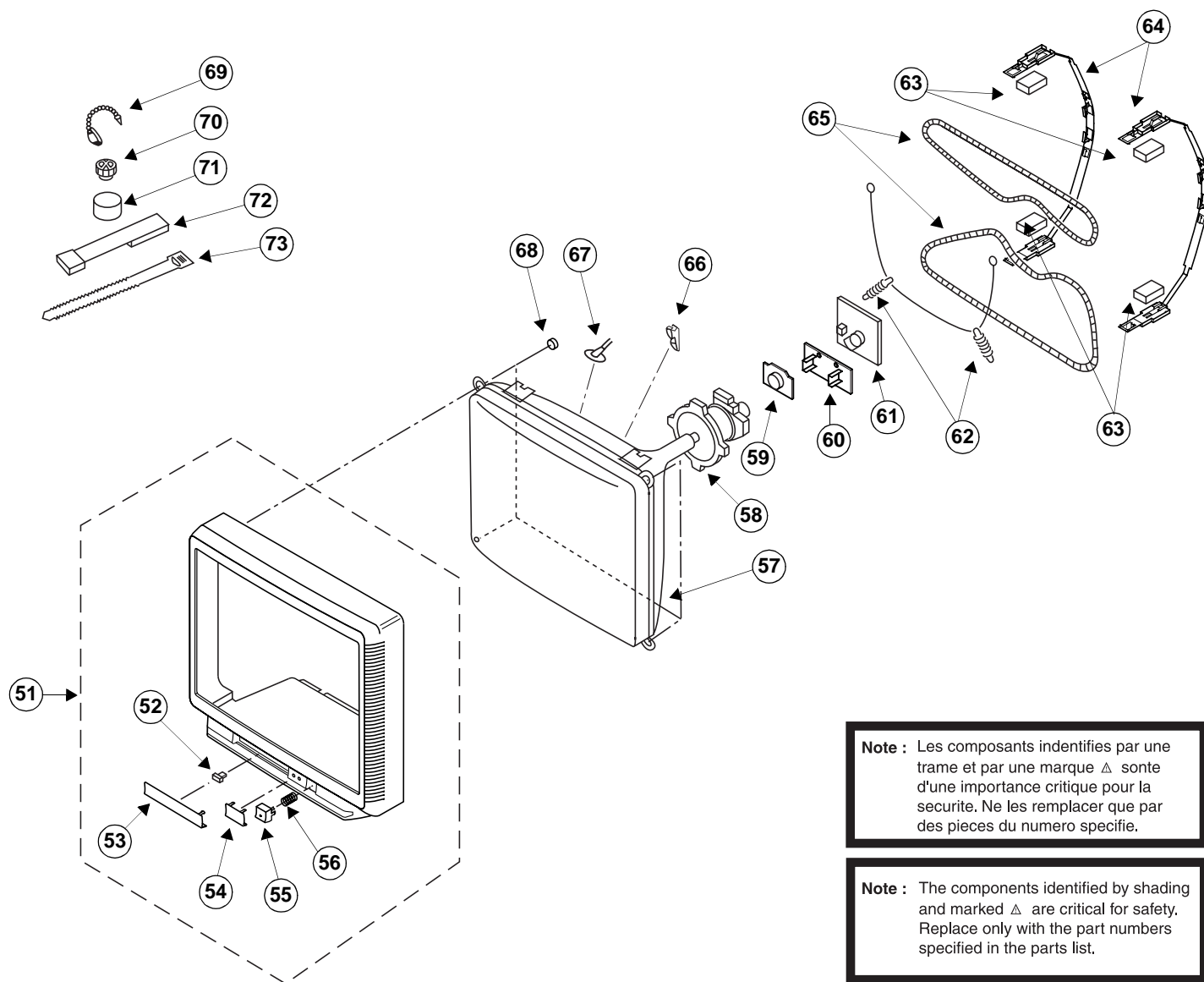
### 6-1. CHASSIS

- 7-685-663-79 x 1
- 7-685-663-71 x 4



REF.NO.	PART.NO	DESCRIPTION	REMARK	REF.NO.	PART.NO	DESCRIPTION	REMARK
1	$\Delta$ 1-652-433-21	SWITCH, PUSH (AC POWER)		8	*A-1632-721-A	A BOARD, COMPLETE (KV-29X5A)	
2	4-204-051-01	BRACKET, MAIN			*A-1632-716-A	A BOARD, COMPLETE (KV-29X5B)	
3	4-202-531-01	AC CORD LOCK (SC)			*A-1632-715-A	A BOARD, COMPLETE (KV-29X5D)	
4	$\Delta$ 1-756-286-11	CORD, POWER (KV-29X5A/29X5B/29X5D/29X5E 29X5K/29X5R)			*A-1632-720-A	A BOARD, COMPLETE (KV-29X5E)	
	1-776-204-11	CORD, POWER (FILTER) (KV-29X5L/29X5U)			*A-1632-759-A	A BOARD, COMPLETE (KV-29X5K)	
5	$\Delta$ 1-453-265-11	TRANSFORMER ASSY, FLYBACK (NX-1681/U2B4)			*A-1632-722-A	A BOARD, COMPLETE (KV-29X5L)	
6	1-693-418-11	TUNER (TELE9-001A) (KV-29X5A/29X5B/29X5D 29X5E/29X5L)			*A-1632-717-A	A BOARD, COMPLETE (KV-29X5R)	
	8-598-432-00	TUNER (BTP-AC411) (KV-29X5K)			*A-1632-713-A	A BOARD, COMPLETE (KV-29X5U)	
	8-598-361-01	TUNER (BTP-AC402) (KV-29X5R)		9	*A-1646-157-A	H1 BOARD, COMPLETE	
	8-598-360-01	TUNER (BTP-AU602) (KV-29X5U)		10	4-204-052-01	BAFFLE BOARD (R)	
7	*A-1652-053-A	S1 BOARD, COMPLETE (KV-29X5A/29X5D/ 29X5K/29X5R)		11	1-503-902-11	SPEAKER (15X6.5 CM)	
	*A-1652-056-A	S1 BOARD, COMPLETE (KV-29X5B)		12	4-204-054-01	BOX, SPEAKER	
	*A-1652-052-A	S1 BOARD, COMPLETE (KV-29X5E/29X5L/29X5U)		13	4-204-053-01	BAFFLE BOARD (L)	
				14	X-4200-373-1	COVER ASSY, REAR	

## 6-2. PICTURE TUBE



REF.NO.	PART.NO	DESCRIPTION	REMARK	REF.NO.	PART.NO	DESCRIPTION	REMARK
51	X-4200-372-1	BEZNET ASSY (BLACK)	52-56	62	4-200-433-11	SPRING, EXTENSION	
	X-4200-372-3	BEZNET ASSY (GREY)		63	4-203-390-11	CUSHION, DGC	
52	4-047-464-01	CATCHER, PUSH		64	4-202-749-01	HOLDER, DGC (29")	
53	4-204-050-01	DOOR, CONTROL (PAINTED) (BLACK)		65	Δ 1-406-807-11	COIL, DEMAGNETIZATION	
	4-204-050-21	DOOR, CONTROL (PAINTED) (GREY)		66	3-704-495-01	SPACER, DY	
54	4-204-047-01	WINDOW, ORNAMENTAL		67	Δ 1-251-317-31	CAP ASSY, HIGH VOLTAGE	
55	4-204-049-01	BUTTON, POWER		68	4-203-043-01	SCREW (PT)	
56	4-202-964-01	SPRING		69	4-308-870-00	CLIP, LEAD WIRE	
57	Δ 8-733-856-05	PICTURE TUBE (SD-269) (M68LCT60X)		70	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM Ø	
58	Δ 8-451-467-12	DEFLECTION YOKE (Y29GXA2B)		71	1-425-032-00	MAGNET, DISK; 10MM Ø	
59	Δ 8-453-005-21	NECK ASSY (NA297 - M2)		72	X-4387-214-1	PERMALLOY ASSY, CORRECTION	
60	*A-1644-088-A	VM BOARD, COMPLETE		73	3-701-007-00	BAND, BINDING	
61	*A-1638-111-A	C BOARD COMPLETE					

## SECTION 7 ELECTRICAL PARTS LIST

When indicating parts by reference number, please include the board name.

CAPACITORS                      COILS  
MF : mF, PF : mmF              MMH : mH , uH

- Items marked “ \* “ are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- RESISTORS
- All resistors are in ohms.
- F : nonflammable.

**Note :** Les composants indentifiés par une trame et par une marque  $\Delta$  sont de d'une importance critique pour la sécurité. Ne les remplacer que par des pièces du numéro spécifié.

**Note :** The components identified by shading and marked  $\Delta$  are critical for safety. Replace only with the part numbers specified in the parts list.

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REF.NO.	PART.NO	DESCRIPTION	REMARK	REF.NO.	PART.NO	DESCRIPTION	REMARK
	*A-1632-721-A	A BOARD COMPLETE (KV-29X5A) *****		C030	1-104-665-11	ELECT 100MF 20%	25V
	*A-1632-716-A	A BOARD COMPLETE (KV-29X5B) *****		C031	1-163-017-00	CERAMIC CHIP 0.0047MF 10%	50V
	*A-1632-715-A	A BOARD COMPLETE (KV-29X5D) *****		C032	1-163-077-00	CERAMIC CHIP 0.1MF 10%	25V
	*A-1632-720-A	A BOARD COMPLETE (KV-29X5E) *****		C033	1-164-004-11	CERAMIC CHIP 0.1MF 10%	25V
	*A-1632-759-A	A BOARD COMPLETE (KV-29X5K) *****		C035	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V
	*A-1632-722-A	A BOARD COMPLETE (KV-29X5L) *****		C036	1-163-017-00	CERAMIC CHIP 0.0047MF 10%	50V
	*A-1632-717-A	A BOARD COMPLETE (KV-29X5R) *****		C037	1-163-017-00	CERAMIC CHIP 0.0047MF 10%	50V
	*A-1632-713-A	A BOARD COMPLETE (KV-29X5U) *****		C038	1-126-964-11	ELECT 10MF 20%	50V
	4-382-854-11	SCREW (M3X10) , P, SW (+)		C039	1-163-017-00	CERAMIC CHIP 0.0047MF 10%	50V
	< CAPACITOR >			C040	1-163-125-00	CERAMIC CHIP 220PF 5%	50V
C004	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C041	1-163-205-00	CERAMIC CHIP 0.001MF 10%	50V
C005	1-163-105-00	CERAMIC CHIP 33PF	5% 50V	C042	1-126-933-11	ELECT 100MF 20%	16V
C006	1-163-105-00	CERAMIC CHIP 33PF	5% 50V	C043	1-126-935-11	ELECT 470MF 20%	16V
C007	1-126-935-11	ELECT 470MF	20% 16V	C100	1-163-038-00	CERAMIC CHIP 0.1MF	25V (KV-29X5B)
C008	1-126-964-11	ELECT 10MF	20% 50V	C103	1-104-665-11	ELECT 100MF 20%	25V
C009	1-126-965-11	ELECT 22MF	20% 50V	C105	1-126-965-11	ELECT 22MF 20%	50V
C010	1-126-959-11	ELECT 0.47MF	20% 50V	C108	1-163-465-11	CERAMIC CHIP 9PF	0.25PF 50V
C011	1-126-965-11	ELECT 22MF	20% 50V	C109	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C012	1-126-959-11	ELECT 0.47MF	20% 50V	C110	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C013	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V	C111	1-216-296-00	SHORT 0 (KV-29X5A/29X5D/29X5E/29X5K/ KV-29X5L/29X5R/29X5U)	50V (KV-29X5B)
C016	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V		1-163-059-00	CERAMIC CHIP 0.01MF	50V
C018	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C112	1-163-031-11	CERAMIC CHIP 0.01MF	50V
C019	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C115	1-164-489-11	CERAMIC CHIP 0.22MF	10% 16V
C022	1-126-935-11	ELECT 470MF	20% 16V	C116	1-126-961-11	ELECT 2.2MF	20% 50V
C024	1-104-665-11	ELECT 100MF	20% 25V	C117	1-126-961-11	ELECT 2.2MF	20% 50V
C025	1-126-960-11	ELECT 1MF	20% 50V	C118	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C028	1-163-117-00	CERAMIC CHIP 100PF	5% 50V	C121	1-163-031-11	CERAMIC CHIP 0.01MF	50V (KV-29X5B)
C029	1-163-077-00	CERAMIC CHIP 0.1MF	10% 25V	C122	1-104-665-11	ELECT 100MF 20%	25V (KV-29X5B)
				C129	1-126-963-11	ELECT 4.7MF 20%	50V
				C133	1-162-638-11	CERAMIC CHIP 1MF	16V (KV-29X5B)
				C134	1-128-551-11	ELECT 22MF 20%	25V

REF.NO.	PART.NO	DESCRIPTION	REMARK	REF.NO.	PART.NO	DESCRIPTION	REMARK
C135	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C410	1-126-964-11	ELECT 10MF	20% 50V
C138	1-165-319-11	CERAMIC CHIP 0.1MF	50V	C413	1-163-141-00	CERAMIC CHIP 0.001MF	5% 50V
C139	1-163-031-11	CERAMIC CHIP 0.01MF	50V	C414	1-126-960-11	ELECT 1MF	20% 50V
C140	1-163-031-11	CERAMIC CHIP 0.01MF	50V			(KV-29X5A/29X5D/29X5E/29X5L/29X5R)	
C143	1-104-664-11	ELECT 47MF	20% 25V		1-163-141-00	ELECT 0.001MF	20% 50V
						(KV-29X5B/29X5K/29X5U)	
C201	1-104-666-11	ELECT 220MF	20% 25V	C415	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C203	1-126-942-61	ELECT 1000MF	20% 25V	C416	1-126-964-11	ELECT 10MF	20% 50V
C204	1-126-942-61	ELECT 1000MF	20% 25V	C417	1-163-141-00	CERAMIC CHIP 0.001MF	5% 50V
C206	1-126-960-11	ELECT 1MF	20% 50V	C418	1-126-960-11	ELECT 1MF	20% 50V
C207	1-126-972-11	ELECT 1000MF	20% 50V	C422	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C208	1-126-960-11	ELECT 1MF	20% 50V	C423	1-126-964-11	ELECT 10MF	20% 50V
C215	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C430	1-104-664-11	ELECT 47MF	20% 25V
C301	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C432	1-163-141-00	CERAMIC CHIP 0.001MF	5% 50V
C302	1-126-967-11	ELECT 47MF	20% 16V	C433	1-163-141-00	CERAMIC CHIP 0.001MF	5% 50V
C303	1-101-004-00	CERAMIC 0.01MF	50V	C434	1-126-935-11	ELECT 470MF	20% 16V
C304	1-126-964-11	ELECT 10MF	20% 50V	C435	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C305	1-163-005-11	CERAMIC CHIP 470PF	10% 50V	C436	1-163-055-00	CERAMIC CHIP 0.0047MF	10% 50V
C307	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C437	1-535-465-11	LEAD, JUMPER (5.0MM)	
C308	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C438	1-535-465-11	LEAD, JUMPER (5.0MM)	
C309	1-126-963-11	ELECT 4.7MF	20% 50V	C443	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C312	1-163-099-00	CERAMIC CHIP 18PF	5% 50V	C444	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C313	1-163-099-00	CERAMIC CHIP 18PF	5% 50V	C445	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C314	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C501	1-126-968-11	ELECT 100MF	20% 50V
C316	1-163-259-91	CERAMIC CHIP 220PF	5% 50V	C502	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C317	1-136-169-00	FILM 0.22MF	5% 50V	C503	1-126-968-11	ELECT 100MF	20% 50V
C319	1-126-964-11	ELECT 10MF	20% 50V	C504	1-106-220-00	MYLAR 0.1MF	10% 100V
C321	1-126-963-11	ELECT 4.7MF	20% 50V	C505	1-136-173-00	FILM 0.47MF	5% 50V
C322	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C506	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C328	1-104-664-11	ELECT 47MF	20% 25V	C507	1-126-933-11	ELECT 100MF	20% 16V
C329	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C508	1-126-960-11	ELECT 1MF	20% 50V
C330	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C509	1-107-364-11	MYLAR 0.01MF	10% 200V
C331	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C510	1-163-133-00	CERAMIC CHIP 470PF	5% 50V
C332	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C512	1-162-114-00	CERAMIC 0.0047MF	2KV
C333	1-126-960-91	ELECT 1MF	20% 50V	C513	1-107-662-11	ELECT 22MF	20% 250V
C334	1-163-017-91	CERAMIC CHIP 4700PF	10% 50V	C515	1-104-666-11	ELECT 220MF	20% 25V
C335	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C517	1-104-666-11	ELECT 220MF	20% 25V
C336	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C518	1-106-375-12	MYLAR 0.022MF	99% 200V
C337	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C519	1-163-275-11	CERAMIC CHIP 0.001MF	5% 50V
C338	1-126-967-11	ELECT 47MF	20% 50V	C520	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C339	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C522	1-137-399-11	FILM 0.1MF	5% 50V
C401	1-163-141-00	CERAMIC CHIP 0.001MF	5% 50V	C531	1-126-964-11	ELECT 10MF	20% 50V
C402	1-126-960-11	ELECT 1MF	20% 50V	C532	1-163-037-11	CERAMIC CHIP 0.022MF	10% 50V
C403	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V	C533	1-163-017-91	CERAMIC CHIP 0.0047MF	10% 50V
C405	1-163-141-00	CERAMIC CHIP 0.001MF	5% 50V	C535	1-163-251-11	CERAMIC CHIP 100PF	5% 50V
C406	1-126-960-11	ELECT 1MF	20% 50V	C536	1-117-671-11	FILM 1MF	5% 200V
C407	1-126-964-11	ELECT 10MF	20% 50V	C537	1-137-417-11	MYLAR 0.0047MF	10% 200V
C408	1-126-964-11	ELECT 10MF	20% 50V				

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The components identified by shading and marked  $\Delta$  are critical for safety  
Replace only with the part number specified.

REF. NO.	PART.NO	DESCRIPTION	REMARK
C539	1-111-230-91	ELECT 1MF	20% 160V
C540	1-137-051-91	FILM 0.033MF	10% 400V
C541	1-106-383-00	MYLAR 0.047MF	10% 200V
C542	1-162-134-11	CERAMIC 470PF	10% 2KV
C543	1-162-134-11	CERAMIC 470PF	10% 2KV
C544	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C545	1-126-960-11	ELECT 1MF	20% 50V
C546	1-130-895-51	FILM 0.056MF	5% 400V
C547	1-117-813-11	FILM 0.75MF	5% 200V
C548	1-162-134-11	CERAMIC 470PF	10% 2KV
C550	1-107-638-11	ELECT 33MF	20% 160V
C552	1-102-212-00	CERAMIC 820PF	10% 500V
C553	1-137-417-11	MYLAR 0.0047MF	10% 200V
C555	1-117-648-11	FILM 15000PF	3% 1.2KV
C571	1-123-024-21	ELECT 33MF	160V
C572	1-104-665-11	ELECT 100MF	20% 25V
C579	1-535-465-11	LEAD, JUMPER (5.0MM)	20% 25V
		(KV-29X5B/29X5K/29X5U)	
C580	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C582	1-163-275-11	CERAMIC CHIP 0.001MF	5% 50V
C583	1-535-303-00	LEAD, JUMPER (5.0MM)	
C584	1-126-963-11	ELECT 4.7MF	20% 50V
C601 $\Delta$	1-107-563-11	FILM 0.1MF	20% 300V
C602	1-107-563-11	FILM 0.1MF	20% 300V
C603 $\Delta$	1-117-700-51	CERAMIC 0.0022MF	99% 250V
C604 $\Delta$	1-117-700-51	CERAMIC 0.0022MF	99% 250V
C605	1-104-652-11	ELECT 470MF	20% 10V
C606	1-125-555-11	ELECT(BLOCK) 330MF	20% 400V
		(KV-29X5A/29X5B/29X5D/29X5E/ KV-29X5L/29X5R/29X5U)	
C607	1-125-787-51	CERAMIC 680PF	10% 2KV
C609	1-107-915-11	ELECT 2200MF	20% 50V
C610	1-104-665-11	ELECT 100MF	20% 25V
C611	1-165-127-11	CERAMIC 470PF	10% 500V
C612 $\Delta$	1-161-964-51	CERAMIC 0.0047MF	250V
C613 $\Delta$	1-161-964-51	CERAMIC 0.0047MF	250V
C614 $\Delta$	1-161-964-51	CERAMIC 0.0047MF	250V
C615	1-130-202-00	FILM 0.022MF	10% 400V
C618	1-107-890-11	ELECT 2200MF	20% 25V
C621	1-163-005-11	CERAMIC CHIP 470PF	10% 50V
C622 $\Delta$	1-161-964-51	CERAMIC 0.0047MF	250V
C624	1-104-665-11	ELECT 100MF	20% 25V
C625	1-104-665-11	ELECT 100MF	20% 25V
C628	1-124-347-00	ELECT 100MF	20% 160V
C629	1-136-189-00	FILM 0.1MF	10% 250V
C630	1-165-127-11	CERAMIC 470PF	10% 500V
C633	1-104-332-11	CERAMIC 470PF	10% 2KV

REF. NO.	PART.NO	DESCRIPTION	REMARK
C635	1-107-675-11	ELECT 1MF	20% 160V
C638	1-107-670-11	ELECT 10MF	20% 400V
C639	1-104-665-11	ELECT 100MF	20% 25V
C640	1-104-664-11	ELECT 47MF	20% 25V
C641	1-104-665-11	ELECT 100MF	20% 25V
C642	1-104-665-11	ELECT 100MF	20% 25V
C646	1-107-974-11	CERAMIC 47PF	5% 2KV
		< FILTER >	
CF101	1-404-134-00	TRAP, CERAMIC (5.5MHZ)	
CF105	1-760-154-11	TRAP, CERAMIC (KV-29X5B/29X5U)	
SWF101	1-767-874-11	FILTER, SURFACE WAVE (KV-29X5A/29X5D/ KV-29X5E/29X5K/29X5R/ KV-29X5U)	
	1-579-273-11	FILTER, SURFACE WAVE (KV-29X5B/29X5L)	
SWF102	1-767-873-11	FILTER, SURFACE WAVE	
SWF103	1-760-722-11	FILTER, SURFACE WAVE (KV-29XB)	
		< CONNECTOR >	
CN001	*1-564-508-11	PLUG, CONNECTOR 5P	
CN007	*1-564-510-11	PLUG, CONNECTOR 7P	
CN101	1-766-922-11	CONNECTOR, BOARD TO BOARD 18P	
CN201	*1-564-507-11	PLUG, CONNECTOR 4P	
CN208	*1-564-508-11	PLUG, CONNECTOR 5P	
CN406	1-564-511-11	PLUG, CONNECTOR 8P	
CN501	*1-580-798-11	CONNECTOR PIN (DY) 6P	
CN502	*1-691-135-11	PIN, CONNECTOR (PC BOARD) 4P	
CN503	*1-564-507-11	PLUG, CONNECTOR 4P	
CN504	*1-564-509-11	PLUG, CONNECTOR 6P	
CN505	*1-568-882-51	PIN, CONNECTOR 7P	
CN506	1-695-915-11	TAB (CONTACT)	
CN509	*1-508-784-00	PIN, CONNECTOR (5MM PITCH) 1P	
CN602 $\Delta$	1-508-765-00	PIN, CONNECTOR (5MM PITCH) 3P	
CN603 $\Delta$	1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P	
CN606 $\Delta$	*1-691-291-11	PIN, CONNECTOR (PC BOARD) 5P	
		< DIODE >	
D001	8-719-109-89	DIODE RD5.6ESB2	
D002	8-719-109-89	DIODE RD5.6ESB2	
D004	8-719-109-89	DIODE RD5.6ESB2	
D005	8-719-109-89	DIODE RD5.6ESB2	
D007	8-719-109-89	DIODE RD5.6ESB2	
D008	8-719-991-33	DIODE 1SS133T-77	
D009	8-719-109-89	DIODE RD5.6ESB2	
D010	8-719-109-89	DIODE RD5.6ESB2	
D011	8-719-109-89	DIODE RD5.6ESB2	
D012	8-719-914-43	DIODE DAN202K-T-146	

REF.NO.	PART.NO	DESCRIPTION	REMARK	REF.NO.	PART.NO	DESCRIPTION	REMARK
D014	8-719-058-24	DIODE RB501V-40TE-17		D613	8-719-911-19	DIODE 1SS119-25	
D015	8-719-914-43	DIODE DAN202K		D614	8-719-058-38	DIODE FMN-G12S	
D017	8-719-109-89	DIODE RD5.6ESB2		D619	8-719-043-76	DIODE AK04V0	
D018	8-719-991-33	DIODE 1SS133T-77		D621	8-719-068-00	DIODE ERC04-06SE	
D023	8-719-109-89	DIODE RD5.6ESB2		D626	8-719-068-00	DIODE ERC04-06SE	
D101	8-719-982-24	DIODE MTZJ-T-33A		D627	8-719-510-26	DIODE D1NL20	
D104	8-719-914-43	DIODE DAN202K (KV-29X5B)		D628	8-719-059-23	DIODE P6KE200AG23	
D201	8-719-929-15	DIODE HZS9.1NB2		D629	8-719-979-64	DIODE UF4005PKG23	
D202	8-719-914-43	DIODE DAN202K		D631	8-719-110-31	DIODE RD12ES-B2	
D204	8-719-109-89	DIODE RD5.6ESB2		D632	8-719-510-64	DIODE S2LA20F	
D205	8-719-109-89	DIODE RD5.6ESB2		D633	8-719-109-89	DIODE RD5.6ES-B2	
D206	8-719-109-89	DIODE RD5.6ESB2		< FERRITE BEAD >			
D306	8-719-109-89	DIODE RD5.6ESB2		FB001	1-412-911-11	FERRITE	0UH
D307	8-719-109-89	DIODE RD5.6ESB2		FB002	1-412-911-11	FERRITE	0UH
D308	8-719-109-72	DIODE RD5.9ESB2		FB601	1-412-911-11	FERRITE	0UH
D309	8-719-991-33	DIODE 1SS133T-77		FB602	1-412-911-11	FERRITE	0UH
D405	8-719-109-97	DIODE RD5.8ESB2		FB605	1-410-397-21	FERRITE	1.1UH
D406	8-719-109-97	DIODE RD5.8ESB2		FB608	1-412-911-11	FERRITE	0UH
D407	8-719-109-97	DIODE RD6.8ES-B2		FB609	1-535-465-11	LEAD, JUMPER (5.0MM)	
D409	8-719-109-97	DIODE RD6.8ES-B2		FB610	1-410-397-21	FERRITE	1.1UH
D414	8-719-109-97	DIODE RD6.8ES-B2		FB611	1-410-397-21	FERRITE	1.1UH
D415	8-719-929-15	DIODE HZS9.1NB2		FB612	1-535-465-11	LEAD, JUMPER (5.0MM)	
D417	8-719-929-15	DIODE HZS9-1NB2		< IC >			
D422	8-719-109-97	DIODE RD6.8ES-B2		IC001	8-759-525-78	IC SAA5497PS/M1A/040	
D423	8-719-109-97	DIODE RD6.8ES-B2				(KV-29X5A/29X5D)	
D427	8-719-109-97	DIODE RD6.8ES-B2			8-759-526-01	IC SAA5497PS/M1A/038	
D501	8-719-302-43	DIODE EL1Z				(KV-29X5B/29X5E/29X5K/29X5L/29X5U)	
D502	8-719-924-13	DIODE MTZJ-T-77-22B			8-759-525-77	IC SAA5497PS/M1A/039	(KV-29X5R)
D511	8-719-028-72	DIODE RGP02-17EL-6433		IC003	8-759-468-56	IC MN1381T	
D512	8-719-302-43	DIODE EL1Z		IC004	8-759-432-33	IC ST24W08FM6TR	
D513	8-719-979-85	DIODE EGP20G		IC005	8-759-516-41	IC CD4052BCM	
D514	8-719-979-85	DIODE EGP20G		IC101	8-759-466-47	IC TDA9817/V1	(KV-29XA/29X5D/29X5E/ KV-29X5K/29X5L/29X5R/ KV-29X5U)
D534	8-719-302-43	DIODE EL1Z			8-759-466-49	IC TDA9818/V1	(KV-29X5B)
D535	8-719-908-03	DIODE GP08D		IC201	8-759-442-74	IC TDA7495	
D536	8-719-945-80	DIODE ERC06-15S		IC301	8-752-082-35	IC CXA2060AS	
D538	8-719-908-03	DIODE GP08D		IC501	8-759-192-71	IC STV9379	
D539	8-719-900-26	DIODE ERD29-08J		IC531	8-759-450-95	IC LM393N	
D541	1-535-465-11	LEAD, JUMPER (5.0MM)		IC603	8-749-920-61	IC SE135N	
		(KV-29X5A/29X5D/29X5E/29X5L/29X5R)		IC604	8-759-524-82	IC TYA7805CTV	
D571	8-719-911-19	DIODE 1SS119-25		IC605	8-759-524-83	IC TYA7809CTV	
D573	8-719-921-40	DIODE MTZJ-4.7C		IC606	8-749-013-75	IC STR-F6654	
D601	8-719-510-53	DIODE D4SB60L		IC608	8-759-524-82	IC TYA7805CTV	
D602	8-719-046-74	DIODE AU-01Z-V1		IC609	8-759-468-89	IC TOP209P	
D603	8-719-312-61	DIODE EU-1Z					
D605	8-719-312-10	DIODE RU4AM-T3					
D608	8-719-067-88	DIODE RG1CLF-B1					
D610	8-719-067-78	DIODE RN3Z-LF014-302					

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The components identified by shading and marked  $\Delta$  are critical for safety  
Replace only with the part number specified.

REF. NO.	PART.NO	DESCRIPTION	REMARK	REF. NO.	PART.NO	DESCRIPTION	REMARK
< PHOTO COUPLER >				Q014	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
				Q101	8-729-216-22	TRANSISTOR 2SA1162-G	
PH601 $\Delta$	8-749-010-64	PHOTO COUPLER PC123FY2		Q107	8-729-022-54	TRANSISTOR 2SC3779C,D-AA	(KV-29X5B)
< SOCKET >				Q109	1-801-806-11	TRANSISTOR DTC144EKA	(KV-29X5B)
J401	1-766-296-11	CONNECTOR, DUAL SCART		Q110	1-801-806-11	TRANSISTOR DTC144EKA	(KV-29X5B)
J404	1-770-989-11	JACK, PIN 2P		Q111	8-729-216-22	TRANSISTOR 2SA1162-G	(KV-29X5B)
< COIL >				Q112	1-801-806-11	TRANSISTOR DTC144EKA	
L001	1-408-603-31	INDUCTOR	10UH	Q202	8-729-620-06	TRANSISTOR 2SC3052-EF	
L102	1-408-599-21	INDUCTOR	4.7UH	Q401	8-729-216-22	TRANSISTOR 2SA1162-G	
L103	1-403-686-11	COIL		Q405	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
L104	1-410-671-31	INDUCTOR	47UH	Q408	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
L106	1-408-417-00	INDUCTOR	47UH	Q501	8-729-620-06	TRANSISTOR 2SC3052-EF	
L108	1-410-985-11	INDUCTOR CHIP	0.22UH	Q532	8-729-038-83	TRANSISTOR 2SK2251-01-F19	
L109	1-410-789-11	INDUCTOR	0.47UH	Q533	8-729-040-62	TRANSISTOR 2SD2539 (LBSONY)	
L201	1-535-465-11	LEAD, JUMPER (5.0MM)		Q535	8-729-119-80	TRANSISTOR 2SC2688-LK	
L202	1-535-465-11	LEAD, JUMPER (5.0MM)		Q571	8-729-105-08	TRANSISTOR 2SA1330-06	
L203	1-406-979-11	INDUCTOR	0UH	Q574	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
L302	1-408-417-00	INDUCTOR	47UH	Q575	1-801-806-11	TRANSISTOR DTC144EKA	
L303	1-408-609-41	INDUCTOR	33UH	Q576	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
L401	1-408-417-00	INDUCTOR	47UH	Q601	8-729-216-22	TRANSISTOR 2SA1162-G	
L402	1-408-417-00	INDUCTOR	47UH	< RESISTOR >			
L405	1-216-295-00	SHORT	0	JR012	1-216-296-00	SHORT	0 (KV-29X5A/29X5D/29X5E/ KV-29X5K/29X5L/29X5R/29X5U)
L406	1-216-295-00	SHORT	0	JR023	1-216-296-00	SHORT	0
L501	1-408-417-00	INDUCTOR	47UH	JR031	1-216-295-00	SHORT	0
L502	1-412-529-41	INDUCTOR	22UH	JR033	1-216-296-00	SHORT	0
L503	1-412-521-31	INDUCTOR	4.7UH	JR403	1-216-073-00	RES,CHIP	10K 5% 1/10W
L532	1-412-553-41	INDUCTOR	3.3MMH	JR409	1-216-295-00	SHORT	0
L533	1-406-989-21	INDUCTOR	0UH	JR411	1-216-295-00	SHORT	0
L535	1-459-111-00	INDUCTOR	0UH	JR412	1-216-295-00	SHORT	0
L537	1-409-855-11	COIL, HORIZONTAL LINEARITY		JR610	1-216-296-00	SHORT	0
L540	1-535-465-11	LEAD, JUMPER (5.0MM)		JR613	1-216-296-00	SHORT	0
L571	1-412-533-21	INDUCTOR	47UH	JW128	1-249-437-11	CARBON	47K 5% 1/4W (KV-29X5A/29X5D/29X5E/29X5L)
L602	1-408-417-00	INDUCTOR	47UH		1-535-465-11	LEAD, JUMPER (5.0MM)	(KV-29X5B/29X5K/29X5R/29X5U)
< TRANSISTOR >				R001	1-216-025-00	RES,CHIP	100 5% 1/10W
Q004	8-729-216-22	TRANSISTOR 2SA1162-G		R002	1-216-025-00	RES,CHIP	100 5% 1/10W
Q005	1-801-806-11	TRANSISTOR DTC144EKA		R003	1-216-065-00	RES,CHIP	4.7K 5% 1/10W
Q006	1-801-806-11	TRANSISTOR DTC144EKA		R004	1-216-065-00	RES,CHIP	4.7K 5% 1/10W
Q007	8-729-620-06	TRANSISTOR 2SC3052-EF		R005	1-216-065-00	RES,CHIP	4.7K 5% 1/10W
Q008	8-729-620-06	TRANSISTOR 2SC3052-EF		R007	1-216-065-00	RES,CHIP	4.7K 5% 1/10W
Q009	8-729-620-06	TRANSISTOR 2SC3052-EF		R009	1-216-025-00	RES,CHIP	100 5% 1/10W
Q010	8-729-620-06	TRANSISTOR 2SC3052-EF		R010	1-216-025-00	RES,CHIP	100 5% 1/10W
Q011	1-801-806-11	TRANSISTOR DTC144EKA		R011	1-216-025-00	RES,CHIP	100 5% 1/10W
Q012	8-729-620-06	TRANSISTOR 2SC3052-EF		R012	1-247-807-31	CARBON	100 5% 1/4W
Q013	8-729-620-06	TRANSISTOR 2SC3052-EF					



REF. NO.	PART.NO	DESCRIPTION	REMARK	REF. NO.	PART.NO	DESCRIPTION	REMARK
R013	1-216-214-00	RES,CHIP	4.7K 5% 1/8W	R089	1-216-081-00	RES,CHIP	22K 5% 1/10W
R014	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	R090	1-216-057-00	RES,CHIP	2.2K 5% 1/10W
R015	1-216-049-00	RES,CHIP	1K 5% 1/10W	R091	1-216-081-00	RES,CHIP	22K 5% 1/10W
R016	1-216-073-00	RES,CHIP	10K 5% 1/10W	R092	1-216-073-00	RES,CHIP	10K 5% 1/10W
R019	1-216-053-00	RES,CHIP	1.5K 5% 1/10W	R093	1-216-230-00	RES,CHIP	22K 5% 1/8W
R023	1-216-295-00	SHORT	0	R094	1-216-057-00	RES,CHIP	2.2K 5% 1/10W
R029	1-216-073-00	RES,CHIP	10K 5% 1/10W	R095	1-216-025-00	RES,CHIP	100 5% 1/10W
R030	1-216-081-00	RES,CHIP	22K 5% 1/10W	R096	1-247-807-31	CARBON	100 5% 1/4W
R032	1-216-089-00	RES,CHIP	47K 5% 1/10W	R097	1-247-807-31	CARBON	100 5% 1/4W
R034	1-216-065-00	RES,CHIP	4.7K 5% 1/10W	R098	1-247-807-31	CARBON	100 5% 1/4W
R035	1-216-049-00	RES,CHIP	1K 5% 1/10W	R099	1-247-807-31	CARBON	100 5% 1/4W
R036	1-216-065-00	RES,CHIP	4.7K 5% 1/10W	R101	1-216-049-00	RES,CHIP	1K 5% 1/10W
R038	1-216-073-00	RES,CHIP	10K 5% 1/10W	R106	1-215-900-11	METAL OXIDE	22K 5% 2W F
R039	1-216-089-91	RES,CHIP	47K 5% 1/10W	R110	1-216-296-91	SHORT	0 (KV-29X5B)
R050	1-216-041-00	RES,CHIP	470 5% 1/10W	R111	1-216-057-00	RES,CHIP	2.2K 5% 1/10W (KV-29X5B)
R051	1-216-049-00	RES,CHIP	1K 5% 1/10W	R112	1-216-057-00	RES,CHIP	2.2K 5% 1/10W (KV-29X5B)
R053	1-216-065-00	RES,CHIP	4.7K 5% 1/10W	R116	1-249-437-11	CARBON	47K 5% 1/4W
R054	1-216-041-00	RES,CHIP	470 5% 1/10W			(KV-29X5A/29X5D/29X5E/29X5K/29X5L)	
R055	1-216-081-00	RES,CHIP	22K 5% 1/10W	R120	1-216-037-00	RES,CHIP	330 5% 1/10W
R056	1-216-105-00	RES,CHIP	220K 5% 1/10W	R121	1-216-025-00	RES,CHIP	100 5% 1/10W
R057	1-216-075-00	RES,CHIP	12K 5% 1/10W	R122	1-216-025-00	RES,CHIP	100 5% 1/10W
R058	1-216-063-91	RES,CHIP	3.9K 5% 1/10W	R127	1-216-031-00	RES,CHIP	180 5% 1/10W (KV-29X5B)
R059	1-216-089-00	RES,CHIP	47K 5% 1/10W	R128	1-216-065-00	RES,CHIP	4.7K 5% 1/10W (KV-29X5B)
R060	1-216-174-00	RES,CHIP	100 5% 1/8W	R129	1-216-063-91	RES,CHIP	3.9K 5% 1/10W (KV-29X5B)
R061	1-216-174-00	RES,CHIP	100 5% 1/8W	R133	1-216-295-00	SHORT	0 (KV-29X5A/29X5D/29X5E/29X5K/29X5L/29X5R/29X5U)
R062	1-216-033-00	RES,CHIP	220 5% 1/10W	R142	1-216-295-00	SHORT	0
R063	1-216-065-00	RES,CHIP	4.7K 5% 1/10W (KV-29X5B)	R143	1-216-025-00	RES,CHIP	100 5% 1/10W
R064	1-216-065-00	RES,CHIP	4.7K 5% 1/10W (KV-29X5B)	R144	1-216-079-00	RES,CHIP	18K 5% 1/10W
R065	1-216-025-00	RES,CHIP	100 5% 1/10W	R145	1-216-212-00	RES,CHIP	3.9K 5% 1/8W
R066	1-216-065-00	RES,CHIP	4.7K 5% 1/10W	R147	1-216-017-91	RES,CHIP	47 5% 1/10W (KV-29X5B)
R067	1-216-065-00	RES,CHIP	4.7K 5% 1/10W	R148	1-216-174-00	RES,CHIP	100 5% 1/8W (KV-29X5B)
R069	1-216-049-00	RES,CHIP	1K 5% 1/10W	R149	1-216-049-00	RES,CHIP	1K 5% 1/10W (KV-29X5B)
R070	1-216-081-00	RES,CHIP	22K 5% 1/10W	R151	1-216-049-00	RES,CHIP	1K 5% 1/10W
R071	1-216-214-00	RES,CHIP	4.7K 5% 1/8W	R152	1-216-025-00	RES,CHIP	100 5% 1/10W (KV-29X5B)
R072	1-216-097-00	RES,CHIP	100K 5% 1/10W	R153	1-216-180-00	RES,CHIP	180 5% 1/8W (KV-29X5B)
R073	1-216-097-00	RES,CHIP	100K 5% 1/10W	R154	1-216-238-91	RES,CHIP	47K 5% 1/8W
R075	1-216-069-00	RES,CHIP	6.8K 5% 1/10W	R155	1-216-089-00	RES,CHIP	47K 5% 1/10W
R080	1-216-073-00	RES,CHIP	10K 5% 1/10W	R156	1-216-073-00	RES,CHIP	10K 5% 1/10W (KV-29X5B)
R081	1-216-073-00	RES,CHIP	10K 5% 1/10W	R157	1-216-063-91	RES,CHIP	3.9K 5% 1/10W (KV-29X5B)
R082	1-216-053-00	RES,CHIP	1.5K 5% 1/10W	R158	1-216-069-00	RES,CHIP	6.8K 5% 1/10W (KV-29X5B)
R083	1-216-031-00	RES,CHIP	180 5% 1/10W	R204	1-247-863-91	CARBON	22K 5% 1/4W
R084	1-216-053-00	RES,CHIP	1.5K 5% 1/10W	R206	1-216-085-00	RES,CHIP	33K 5% 1/10W
R085	1-216-031-00	RES,CHIP	180 5% 1/10W	R207	1-216-295-00	SHORT	0
R086	1-216-053-00	RES,CHIP	1.5K 5% 1/10W	R209	1-216-065-00	RES,CHIP	4.7K 5% 1/10W
R087	1-216-180-00	RES,CHIP	180 5% 1/8W	R211	1-215-873-00	METAL OXIDE	4.7K 5% 1W F
R088	1-216-065-00	RES,CHIP	4.7K 5% 1/10W	R213	1-216-089-00	RES,CHIP	47K 5% 1/10W
				R301	1-216-025-00	RES,CHIP	100 5% 1/10W

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REF. NO.	PART.NO	DESCRIPTION	REMARK	REF. NO.	PART.NO	DESCRIPTION	REMARK
R302	1-216-081-71	RES,CHIP	22K 5% 1/10W		1-249-413-11	CARBON 470 5% 1/4W	
R303	1-216-073-00	RES,CHIP	10K 5% 1/10W			(KV-29X5B/29X5K/29X5U)	
R304	1-216-073-00	RES,CHIP	10K 5% 1/10W	R419	1-216-022-00	RES,CHIP	75 5% 1/10W
R306	1-216-206-00	RES,CHIP	2.2K 5% 1/8W	R420	1-216-041-00	RES,CHIP	470 5% 1/10W
R309	1-216-675-11	METAL CHIP	10K 0.50% 1/10W	R421	1-216-113-00	RES,CHIP	470K 5% 1/10W
				R422	1-216-295-00	SHORT	0
R310	1-216-022-00	RES,CHIP	75 5% 1/10W	R425	1-216-077-00	RES,CHIP	15K 5% 1/10W
R311	1-216-022-00	RES,CHIP	75 5% 1/10W				
R313	1-216-025-00	RES,CHIP	100 5% 1/10W	R426	1-216-073-00	RES,CHIP	10K 5% 1/10W
R314	1-216-025-00	RES,CHIP	100 5% 1/10W	R427	1-216-113-00	RES,CHIP	470K 5% 1/10W
R315	1-216-075-91	RES,CHIP	12K 5% 1/10W	R429	1-216-041-00	RES,CHIP	470 5% 1/10W
				R430	1-216-113-00	RES,CHIP	470K 5% 1/10W
R316	1-216-025-00	RES,CHIP	100 5% 1/10W	R431	1-216-295-00	SHORT	0
R317	1-216-049-00	RES,CHIP	1K 5% 1/10W				
R318	1-216-025-00	RES,CHIP	100 5% 1/10W	R432	1-216-113-00	RES,CHIP	470K 5% 1/10W
R319	1-216-025-00	RES,CHIP	100 5% 1/10W	R435	1-216-022-00	RES,CHIP	75 5% 1/10W
R320	1-216-025-00	RES,CHIP	100 5% 1/10W	R436	1-216-041-00	RES,CHIP	470 5% 1/10W
				R439	1-216-041-00	RES,CHIP	470 5% 1/10W
R321	1-216-025-00	RES,CHIP	100 5% 1/10W	R440	1-216-113-00	RES,CHIP	470K 5% 1/10W
R323	1-216-025-00	RES,CHIP	100 5% 1/10W				
R324	1-216-025-00	RES,CHIP	100 5% 1/10W	R441	1-216-295-00	SHORT	0
R325	1-216-025-00	RES,CHIP	100 5% 1/10W	R442	1-216-077-00	RES,CHIP	15K 5% 1/10W
R326	1-216-129-00	RES,CHIP	2.2M 5% 1/10W	R443	1-216-073-00	RES,CHIP	10K 5% 1/10W
				R450	1-216-041-00	RES,CHIP	470 5% 1/10W
R327	1-216-295-00	SHORT	0	R454	1-216-041-00	RES,CHIP	470 5% 1/10W
R331	1-216-057-00	RES,CHIP	2.2K 5% 1/10W				
R332	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	R457	1-216-025-00	RES,CHIP	100 5% 1/10W
R333	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	R459	1-247-807-31	CARBON	100 5% 1/4W
R334	1-216-025-00	RES,CHIP	100 5% 1/10W	R460	1-249-403-11	CARBON	68 5% 1/4W
				R501	1-216-081-00	RES,CHIP	22K 5% 1/10W
R335	1-216-025-00	RES,CHIP	100 5% 1/10W	R502	1-216-097-00	RES,CHIP	100K 5% 1/10W
R337	1-216-065-00	RES,CHIP	4.7K 5% 1/10W				
R338	1-216-049-00	RES,CHIP	1K 5% 1/10W	R503	1-215-888-00	METAL OXIDE	220 5% 2W F
R401	1-216-113-00	RES,CHIP	470K 5% 1/10W	R504	1-249-385-11	CARBON	2.2 5% 1/4W F
R403	1-216-041-00	RES,CHIP	470 5% 1/10W	R505	1-216-065-00	RES,CHIP	4.7K 5% 1/10W
				R506	1-216-061-00	RES,CHIP	3.3K 5% 1/10W
R404	1-216-113-00	RES,CHIP	470K 5% 1/10W	R507	1-216-349-00	METAL OXIDE	1 5% 1W F
R405	1-216-295-00	SHORT	0				
R406	1-216-113-00	RES,CHIP	470K 5% 1/10W	R508	1-216-065-00	RES,CHIP	4.7K 5% 1/10W
R408	1-216-022-00	RES,CHIP	75 5% 1/10W	R509	1-216-061-00	RES,CHIP	3.3K 5% 1/10W
R409	1-216-025-00	RES,CHIP	100 5% 1/10W	R510	1-216-081-00	RES,CHIP	22K 5% 1/10W
				R511	1-215-869-11	METAL OXIDE	1K 5% 1W F
R410	1-216-025-00	RES,CHIP	100 5% 1/10W	R512	1-249-377-11	CARBON	0.47 5% 1/4W F
R411	1-216-022-00	RES,CHIP	75 5% 1/10W				
R412	1-216-025-00	RES,CHIP	100 5% 1/10W	R513	1-216-097-00	RES,CHIP	100K 5% 1/10W
R413	1-216-295-00	SHORT	0	R514	1-249-377-11	CARBON	0.47 5% 1/4W F
R414	1-216-022-00	RES,CHIP	75 5% 1/10W	R515	1-249-377-11	CARBON	0.47 5% 1/4W F
				R516	1-249-493-11	CARBON	56K 5% 1/2W
R415	1-216-022-00	RES,CHIP	75 5% 1/10W	R517	1-249-429-11	CARBON	10K 5% 1/4W
R417	1-247-804-11	CARBON	75 5% 1/4W				
		(KV-29X5A/29X5D/29X5E/29X5K/29X5L/29X5R)		R518	1-216-065-00	RES,CHIP	4.7K 5% 1/10W
	1-247-698-11	CARBON	68 5% 1/4W	R520	1-215-884-51	METAL OXIDE	47 5% 2W F
		(KV-29X5U)		R521	1-216-121-71	RES,CHIP	1M 5% 1/10W
R418	1-260-095-11	CARBON	470 5% 1/2W	R522	1-216-097-00	RES,CHIP	100K 5% 1/10W
		(KV-29X5A/29X5D/29X5E/29X5L/29X5R)		R523	1-216-121-71	RES,CHIP	1M 5% 1/10W

The components identified by shading and marked  $\Delta$  are critical for safety  
Replace only with the part number specified.

REF.NO.	PART.NO	DESCRIPTION	REMARK	REF.NO.	PART.NO	DESCRIPTION	REMARK
R524	1-216-083-91	RES,CHIP	27K 5% 1/10W	R616	1-216-393-00	METAL OXIDE 2.2 5% 3W	F
R525	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	R617	1-249-405-11	CARBON 100 5% 1/4W	F
R526	1-216-089-00	RES,CHIP	47K 5% 1/10W	R619	1-216-065-00	RES,CHIP 4.7K 5% 1/10W	
R527	1-216-077-91	RES,CHIP	15K 5% 1/10W	R622	1-249-401-11	CARBON 47 5% 1/4W	
R528	1-216-246-00	RES,CHIP	100K 5% 1/8W	R627	1-249-389-11	CARBON 4.7 5% 1/4W	F
R529	1-216-073-00	RES,CHIP	10K 5% 1/10W	R628	1-247-791-91	CARBON 22 5% 1/4W	
R530	1-216-085-00	RES,CHIP	33K 5% 1/10W	R652	1-216-393-00	METAL OXIDE 2.2 5% 3W	F
R531	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	R653	1-216-393-00	METAL OXIDE 2.2 5% 3W	F
R532	1-216-063-91	RES,CHIP	3.9K 5% 1/10W	R658	1-215-929-11	METAL OXIDE 100K 5% 3W	F
R533	1-216-073-71	RES,CHIP	10K 5% 1/10W	R659	1-216-383-21	METAL OXIDE 0.33 5% 3W	F
R534	1-216-113-91	RES,CHIP	470K 5% 1/10W	R660	1-216-384-21	METAL OXIDE 0.39 5% 3W	F
R535	1-216-101-91	RES,CHIP	150K 5% 1/10W	R661	1-247-843-11	CARBON 3.3K 5% 1/4W	
R539	1-216-049-00	RES,CHIP	1K 5% 1/10W	R662	1-215-929-11	METAL OXIDE 100K 5% 3W	F
R540	1-215-861-51	METAL OXIDE	47 5% 1W	R664	1-249-417-11	CARBON 1K 5% 1/4W	
R541	1-216-097-00	RES,CHIP	100K 5% 1/10W	R665	1-215-877-11	METAL OXIDE 22K 5% 1W	F
R542	1-216-089-00	RES,CHIP	47K 5% 1/10W	R667	1-215-927-00	METAL OXIDE 47K 5% 3W	F
R543	1-216-089-00	RES,CHIP	47K 5% 1/10W	< VARIABLE RESISTOR >			
R546	1-215-893-11	METAL OXIDE	1.5K 5% 2W				
R547	1-215-893-11	METAL OXIDE	1.5K 5% 2W				
R548	1-216-397-11	METAL OXIDE	4.7 5% 3W	RV101	1-241-765-11	RES, ADJ, CARBON 22K	(KV-29X5B)
R549	1-216-341-11	METAL OXIDE	0.22 5% 1W	< RELAY >			
R552	1-216-061-00	RES,CHIP	3.3K 5% 1/10W				
R553	1-249-381-11	CARBON	1 5% 1/4W	RY601 $\Delta$	1-755-245-11	RELAY	
R571	1-249-417-11	CARBON	1K 5% 1/4W	< SWITCH >			
R572	1-216-369-00	METAL OXIDE	1 5% 2W				
R573	1-216-097-00	RES,CHIP	100K 5% 1/10W	SW532	1-572-707-11	SWITCH, LEVER	
R574	1-216-065-00	RES,CHIP	4.7K 5% 1/10W	< TRANSFORMER >			
R575	1-216-097-00	RES,CHIP	100K 5% 1/10W				
R576	1-249-399-11	CARBON	33 5% 1/4W	T511 $\Delta$	1-453-265-11	FBT ASSY, NX-1681/U2B4	
R581	1-216-089-00	RES,CHIP	47K 5% 1/10W	T531	1-437-195-11	TRANSFORMER, HORIZONTAL DRIVE	
R582	1-216-089-00	RES,CHIP	47K 5% 1/10W	T532	1-431-228-11	TRANSFORMER, POWER MODULATION	
R583	1-216-081-00	RES,CHIP	22K 5% 1/10W	T601 $\Delta$	1-427-962-11	TRANSFORMER, LINE FILTER	
R588	1-216-053-91	RES,CHIP	1.5K 5% 1/10W	T602	1-431-732-11	TRANSFORMER, CONVERTER (SRT)	
R589	1-216-097-00	RES,CHIP	100K 5% 1/10W	T603 $\Delta$	1-431-777-11	TRANSFORMER, CONVERTER	
R590	1-216-081-71	RES,CHIP	22K 5% 1/10W	< THERMISTOR >			
R591	1-215-892-11	METAL OXIDE	1K 5% 2W				
R593	1-249-439-11	CARBON	68K 5% 1/4W	THP601 $\Delta$	1-810-96-11	THERMISTOR, POSITIVE	
R594	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	< TUNER >			
R602	1-202-961-11	CEMENTED	1.8 5% 10W				
R603	1-202-933-61	FUSIBLE	0.1 10% 1/2W	TU101	1-693-418-11	TUNER (TELE9-001A)	
R607 $\Delta$	1-202-961-11	CEMENTED	1.8 5% 10W				
R608	1-215-927-00	METAL OXIDE	47K 5% 3W				
R611	1-249-415-11	CARBON	680 5% 1/4W	8-598-432-00	TUNER (BTP-AC411)		(KV-29X5K)
R613 $\Delta$	1-240-030-91	METAL	4.7M 5% 1/2W	8-598-361-01	TUNER (BTP-AC402)		(KV-29X5R)
R614 $\Delta$	1-240-030-91	METAL	4.7M 5% 1/2W	8-598-360-01	TUNER (BTP-AU602)		(KV-29X5U)
R615	1-249-422-11	CARBON	2.7K 5% 1/4W				



The components identified by shading and marked  $\Delta$  are critical for safety. Replace only with the part number specified.

REF.NO.	PART.NO	DESCRIPTION	REMARK				REF.NO.	PART.NO	DESCRIPTION	REMARK			
< CRYSTAL >							D719	8-719-991-33	DIODE 1SS133T-77				
X001	1-578-774-11	VIBRATOR, CRYSTAL					< CRT SOCKET >						
X302	1-567-505-11	OSCILLATOR, CRYSTAL					J701	△ 1-526-990-21	SOCKET, CRT				
X303	1-567-504-11	OSCILLATOR, CRYSTAL											
*****							< COIL >						
A-1638-111-A C BOARD, COMPLETE							L704	1-408-609-41	INDUCTOR	33UH			
*****							< TRANSISTOR >						
< CAPACITOR >							Q702	8-729-119-78	TRANSISTOR 2SC2785-HFE				
C701	1-102-114-00	CERAMIC	470PF	10%	50V		Q703	8-729-906-70	TRANSISTOR BF871-127				
C702	1-102-115-00	CERAMIC	560PF	10%	50V		Q704	8-729-200-17	TRANSISTOR BF421L-AMMO				
C703	1-102-116-00	CERAMIC	680PF	10%	50V		Q705	8-729-119-78	TRANSISTOR 2SC2785-HFE				
C708	1-162-114-00	CERAMIC	0.0047MF		2KV		Q706	8-729-906-70	TRANSISTOR BF871-127				
C710	1-107-652-11	ELECT	10MF	20%	250V		Q707	8-729-200-17	TRANSISTOR BF421L-AMMO				
C711	1-102-114-00	CERAMIC	470PF	10%	50V		Q708	8-729-119-78	TRANSISTOR 2SC2785-HFE				
C712	1-102-116-00	CERAMIC	680PF	10%	50V		Q709	8-729-906-70	TRANSISTOR BF871-127				
C714	1-126-967-11	ELECT	47MF	20%	16V		Q710	8-729-200-17	TRANSISTOR BF421L-AMMO				
C717	1-102-114-00	CERAMIC	470PF	10%	50V		< RESISTOR >						
C718	1-102-114-00	CERAMIC	470PF	10%	50V		R701	1-247-895-91	CARBON	470K	5%	1/4W	
C719	1-102-114-00	CERAMIC	470PF	10%	50V		R704	1-216-486-00	METAL OXIDE	8.2K	5%	3W	F
C722	1-101-880-00	CERAMIC	47PF	5%	50V		R705	1-260-103-11	CARBON	2.2K	5%	1/2W	
C723	1-101-880-00	CERAMIC	47PF	5%	50V		R706	1-247-815-91	CARBON	220	5%	1/4W	
C724	1-101-880-00	CERAMIC	47PF	5%	50V		R707	1-247-815-91	CARBON	220	5%	1/4W	
< CONNECTOR >							R708	1-247-791-91	CARBON	22	5%	1/4W	
CN701	1-784-633-11	PIN, CONNECTOR 4P					R709	1-202-844-00	SOLID	330K	10%	1/2W	
CN702	1-695-915-11	TAB (CONTACT)					R711	1-247-843-11	CARBON	3.3K	5%	1/4W	
CN703	*1-564-509-11	PLUG, CONNECTOR 6P					R712	1-260-103-11	CARBON	2.2K	5%	1/2W	
< DIODE >							R714	1-216-486-00	METAL OXIDE	8.2K	5%	3W	F
D702	8-719-991-33	DIODE 1SS133T-77					R715	1-249-417-11	CARBON	1K	5%	1/4W	
D703	1-535-465-11	LEAD, JUMPER (5.0MM)					R716	1-247-815-91	CARBON	220	5%	1/4W	
D704	1-535-465-11	LEAD, JUMPER (5.0MM)					R717	1-247-815-91	CARBON	220	5%	1/4W	
D705	1-535-465-11	LEAD, JUMPER (5.0MM)					R718	1-202-814-11	SOLID	33K	10%	1/2W	
D706	8-719-991-33	DIODE 1SS133T-77					R719	1-247-791-91	CARBON	22	5%	1/4W	
D707	8-719-991-33	DIODE 1SS133T-77					R720	1-247-843-11	CARBON	3.3K	5%	1/4W	
D708	8-719-991-33	DIODE 1SS133T-77					R722	1-202-848-00	SOLID	680K	10%	1/2W	
D709	8-719-991-33	DIODE 1SS133T-77					R723	1-249-417-11	CARBON	1K	5%	1/4W	
D710	8-719-991-33	DIODE 1SS133T-77					R724	1-260-131-11	CARBON	470K	5%	1/2W	
D711	1-216-349-51	METAL OXIDE	4.7K	5%	2W		R726	1-260-103-11	CARBON	2.2K	5%	1/2W	
D714	8-719-991-33	DIODE 1SS133T-77					R727	1-247-815-91	CARBON	220	5%	1/4W	
D715	8-719-991-33	DIODE 1SS133T-77					R728	1-216-351-00	METAL OXIDE	1.5	5%	1W	F
D716	8-719-991-33	DIODE 1SS133T-77					R729	1-247-815-91	CARBON	220	5%	1/4W	
D717	8-719-991-33	DIODE 1SS133T-77					R730	1-247-791-91	CARBON	22	5%	1/4W	
D718	8-719-991-33	DIODE 1SS133T-77					R731	1-247-843-11	CARBON	3.3K	5%	1/4W	
							R733	1-247-823-91	CARBON	470	5%	1/4W	

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VM

REF.NO.	PART.NO	DESCRIPTION	REMARK	REF.NO.	PART.NO	DESCRIPTION	REMARK
R734	1-247-823-91	CARBON 470 5% 1/4W		C1912	1-129-702-00	FILM 0.001MF 5% 630V	
R735	1-247-823-91	CARBON 470 5% 1/4W		C1913	1-136-558-11	FILM 0.0039MF 5% 630V	
R736	1-216-486-00	METAL OXIDE 8.2K 5% 3W F		C1914	1-102-157-00	CERAMIC 560PF 10% 500V	
R739	1-249-417-11	CARBON 1K 5% 1/4W		C1915	1-137-102-11	FILM 0.022MF 10% 250V	
R740	1-247-823-91	CARBON 470 5% 1/4W		C1951	1-126-964-11	ELECT 10MF 20% 50V	
R741	1-202-549-00	SOLID 100 20% 1/2W		C1952	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
R744	1-249-421-11	CARBON 2.2K 5% 1/4W		C1953	1-136-165-00	FILM 0.1MF 5% 50V	
R745	1-249-421-11	CARBON 2.2K 5% 1/4W		C1954	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
R746	1-249-421-11	CARBON 2.2K 5% 1/4W		C1955	1-136-165-00	FILM 0.1MF 5% 50V	
< VARIABLE RESISTOR >				C1956	1-126-964-11	ELECT 10MF 20% 50V	
RV701	1-230-641-11	RES, ADJ, METAL GLAZE 2.2M		C1957	1-126-964-11	ELECT 10MF 20% 50V	
RV702	1-241-656-21	RES, ADJ, METAL FILM 110M		C1958	1-136-173-00	FILM 0.47MF 5% 50V	
*****				C1959	1-107-714-11	ELECT 10MF 20% 50V	
*A-1644-088-A VM BOARD, COMPLETE				C1960	1-107-636-11	ELECT 10MF 20% 160V	
*****				< CONNECTOR >			
< CAPACITOR >				CN1705	*1-564-510-11	PLUG, CONNECTOR 7P	
C1701	1-126-933-11	ELECT 100MF 20% 16V		CN1718	1-774-418-11	CONNECTOR, BOARD TO BOARD 8P	
C1702	1-128-551-11	ELECT 22MF 20% 25V		CN1801	*1-564-506-11	PLUG, CONNECTOR 3P	
C1703	1-126-933-11	ELECT 100MF 20% 16V		CN1803	*1-564-507-11	PLUG, CONNECTOR 4P	
C1704	1-107-357-11	FILM 0.47MF 5% 100V		CN1809	*1-508-784-12	PIN CONNECTOR 5MM PITCH	
C1705	1-107-638-11	ELECT 33MF 20% 160V		< DIODE >			
C1706	1-104-999-11	FILM 0.1MF 5% 200V		D1701	8-719-991-33	DIODE 1SS133T-77	
C1707	1-136-207-11	FILM 0.047MF 10% 250V		D1702	8-719-110-88	DIODE RD39ESB2	
C1708	1-137-364-11	FILM 0.001MF 5% 50V		D1703	8-719-110-88	DIODE RD39ESB2	
C1709	1-137-364-11	FILM 0.001MF 5% 50V		D1801	8-719-110-17	DIODE RD10ESB2	
C1710	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V		D1802	8-719-110-17	DIODE RD10ESB2	
C1720	1-107-667-11	ELECT 2.2MF 20% 160V		D1803	8-719-110-17	DIODE RD10ESB2	
C1721	1-136-207-11	FILM 0.047MF 10% 250V		D1840	8-719-302-43	DIODE ELIZ	
C1722	1-126-934-11	ELECT 220MF 20% 16V		D1841	8-719-991-33	DIODE 1SS133T-77	
C1723	1-161-830-00	CERAMIC 0.0047MF 500V		D1901	8-719-991-33	DIODE 1SS133T-77	
C1726	1-126-934-11	ELECT 220MF 20% 16V		D1902	8-719-991-33	DIODE 1SS133T-77	
C1803	1-163-037-11	CERAMIC CHIP 0.022MF 10% 50V		D1903	8-719-991-33	DIODE 1SS133T-77	
C1804	1-126-964-11	ELECT 10MF 20% 50V		D1904	8-719-991-33	DIODE 1SS133T-77	
C1805	1-137-366-11	FILM 0.0022MF 5% 50V		D1905	8-719-923-60	DIODE MTZJ-T-77-9.1A	
C1841	1-163-023-00	CERAMIC CHIP 0.015MF 10% 50V		D1906	8-719-970-87	DIODE ERA38-06	
C1844	1-130-959-00	FILM 0.047MF 10% 400V		D1907	8-719-970-87	DIODE ERA38-06	
C1845	1-136-175-00	FILM 0.68MF 5% 50V		D1908	8-719-300-33	DIODE RU-3AM	
C1901	1-163-251-11	CERAMIC CHIP 100PF 5% 50V		D1909	8-719-991-33	DIODE 1SS133T-77	
C1902	1-137-374-11	FILM 0.047MF 5% 50V		D1910	8-719-991-33	DIODE 1SS133T-77	
C1903	1-126-964-11	ELECT 10MF 20% 50V		< IC >			
C1904	1-137-366-11	FILM 0.0022MF 5% 50V		IC1801	8-759-603-37	IC M5216P	
C1905	1-137-374-11	FILM 0.047MF 5% 50V		IC1901	8-759-450-95	IC LM393N	
C1906	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V		IC1902	8-759-008-70	IC LM358N	
C1911	1-136-189-00	FILM 0.1MF 10% 250V					



REF.NO.	PART.NO	DESCRIPTION	REMARK	REF.NO.	PART.NO	DESCRIPTION	REMARK
< COIL >				R1722	1-216-017-00	RES,CHIP	47 5% 1/10W
L1701	1-408-603-31	INDUCTOR	10UH	R1724	1-216-017-00	RES,CHIP	47 5% 1/10W
L1702	1-408-597-31	INDUCTOR	3.3UH	R1725	1-215-887-00	METAL OXIDE	150 5% 2W F
L1703	1-408-603-31	INDUCTOR	10UH	R1728	1-216-037-00	RES,CHIP	330 5% 1/10W
L1704	1-249-422-11	CARBON	2.7K 5% 1/4W	R1729	1-216-041-00	RES,CHIP	470 5% 1/10W
L1841	1-406-674-11	INDUCTOR	3.3mmH	R1731	1-249-411-11	CARBON	330 5% 1/4W
L1843	1-406-989-21	INDUCTOR	10mmH	R1751	1-216-049-00	RES,CHIP	1K 5% 1/10W
L1901	1-406-677-11	INDUCTOR	10mmH	R1752	1-216-049-00	RES,CHIP	1K 5% 1/10W
< TRANSISTOR >				R1753	1-216-049-00	RES,CHIP	1K 5% 1/10W
Q1701	8-729-120-28	TRANSISTOR	2SC1623-L5L6	R1805	1-216-073-00	RES,CHIP	10K 5% 1/10W
Q1702	8-729-120-28	TRANSISTOR	2SC1623-L5L6	R1806	1-216-117-00	RES,CHIP	680K 5% 1/10W
Q1703	8-729-017-05	TRANSISTOR	2SA1837	R1807	1-216-073-00	RES,CHIP	10K 5% 1/10W
	*4-368-683-11	SPRING, TRANSISTOR	(Q1703)	R1808	1-216-073-00	RES,CHIP	10K 5% 1/10W
Q1704	8-729-119-78	TRANSISTOR	2SC2785-HFE	R1809	1-216-073-00	RES,CHIP	10K 5% 1/10W
				R1810	1-216-073-00	RES,CHIP	10K 5% 1/10W
Q1706	8-729-017-06	TRANSISTOR	2SC4793	R1841	1-216-097-00	RES,CHIP	100K 5% 1/10W
Q1708	8-729-216-22	TRANSISTOR	2SA1162-G	R1842	1-216-057-00	RES,CHIP	2.2K 5% 1/10W
Q1709	8-729-120-28	TRANSISTOR	2SC1623-L5L6	R1843	1-260-111-11	CARBON	10K 5% 1/2W
Q1710	8-729-620-06	TRANSISTOR	2SC3052-EF	R1844	1-216-061-00	RES,CHIP	3.3K 5% 1/10W
Q1840	8-729-120-28	TRANSISTOR	2SC1623-L5L6	R1846	1-260-111-11	CARBON	10K 5% 1/2W
Q1841	8-729-017-06	TRANSISTOR	2SC4793	R1847	1-215-886-11	METAL OXIDE	100 5% 2W F
Q1901	8-729-620-06	TRANSISTOR	2SC3052-EF	R1848	1-215-875-11	METAL OXIDE	10K 5% 1W F
Q1902	8-729-620-06	TRANSISTOR	2SC3052-EF	R1901	1-249-441-11	CARBON	100K 5% 1/4W
Q1903	8-729-011-06	TRANSISTOR	2SC3840K	R1902	1-216-073-00	RES,CHIP	10K 5% 1/10W
Q1904	8-729-620-06	TRANSISTOR	2SC3052-EF	R1903	1-216-073-00	RES,CHIP	10K 5% 1/10W
Q1905	8-729-620-06	TRANSISTOR	2SC3052-EF	R1904	1-216-073-00	RES,CHIP	10K 5% 1/10W
Q1906	8-729-119-80	TRANSISTOR	2SC2688-LK	R1905	1-216-097-00	RES,CHIP	100K 5% 1/10W
Q1907	8-729-119-80	TRANSISTOR	2SC2688-LK	R1906	1-216-073-00	RES,CHIP	10K 5% 1/10W
< RESISTOR >				R1907	1-216-097-00	RES,CHIP	100K 5% 1/10W
R1701	1-216-049-00	RES,CHIP	1K 5% 1/10W	R1908	1-216-033-00	RES,CHIP	220 5% 1/10W
R1702	1-216-049-00	RES,CHIP	1K 5% 1/10W	R1909	1-215-493-00	METAL	1M 1% 1/4W
R1703	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	R1910	1-216-295-00	SHORT	0
R1704	1-216-045-00	RES,CHIP	680 5% 1/10W	R1911	1-216-073-00	RES,CHIP	10K 5% 1/10W
R1705	1-247-815-91	CARBON	220 5% 1/4W	R1912	1-208-845-11	RES,CHIP	1M 5% 1/10W
R1706	1-247-815-91	CARBON	220 5% 1/4W	R1913	1-216-049-00	RES,CHIP	1K 5% 1/10W
R1708	1-216-035-00	RES,CHIP	270 5% 1/10W	R1914	1-216-057-00	RES,CHIP	2.2K 5% 1/10W
R1712	1-260-311-11	CARBON	39 5% 1/2W	R1915	1-216-073-00	RES,CHIP	10K 5% 1/10W
R1713	1-249-384-11	CARBON	1.8 5% 1/4W F	R1916	1-216-675-11	METAL CHIP	10K 0.50% 1/10W
R1714	1-249-414-11	CARBON	560 5% 1/4W F	R1917	1-216-687-11	METAL CHIP	33K 0.50% 1/10W
R1715	1-249-432-11	CARBON	18K 5% 1/4W	R1921	1-215-896-51	METAL OXIDE	4.7K 5% 2W F
R1716	1-249-417-11	CARBON	1K 5% 1/4W F	R1922	1-215-878-00	METAL OXIDE	33K 5% 1W F
R1717	1-215-913-11	METAL OXIDE	220 5% 3W F	R1923	1-216-097-00	RES,CHIP	100K 5% 1/10W
R1718	1-249-432-11	CARBON	18K 5% 1/4W	R1924	1-216-097-00	RES,CHIP	100K 5% 1/10W
R1719	1-249-384-11	CARBON	1.8 5% 1/4W F	R1925	1-216-097-00	RES,CHIP	100K 5% 1/10W
R1720	1-249-400-11	CARBON	39 5% 1/4W F	R1951	1-216-073-00	RES,CHIP	10K 5% 1/10W
R1721	1-249-414-11	CARBON	560 5% 1/4W	R1952	1-216-065-00	RES,CHIP	4.7K 5% 1/10W

The components identified by shading and marked  $\Delta$  are critical for safety  
Replace only with the part number specified.

KV-29X5

VM

H1

REF.NO.	PART.NO	DESCRIPTION	REMARK				REF.NO.	PART.NO	DESCRIPTION	REMARK			
R1953	1-216-081-00	RES,CHIP	22K	5%	1/10W		D902	8-719-929-15	DIODE HZS9.1NBZ				
R1954	1-216-097-00	RES,CHIP	100K	5%	1/10W		D903	8-719-929-15	DIODE HZS9.1NBZ				
R1955	1-216-089-00	RES,CHIP	47K	5%	1/10W		D904	8-719-109-97	DIODE RD6.8ES-B2				
R1956	1-216-113-00	RES,CHIP	470K	5%	1/10W		D905	8-719-109-97	DIODE RD6.8ES-B2				
R1957	1-216-073-00	RES,CHIP	10K	5%	1/10W		D906	8-719-923-60	DIODE MTZJ-T-77-9.1A				
R1958	1-216-065-00	RES,CHIP	4.7K	5%	1/10W		D907	8-719-923-60	DIODE MTZJ-T-77-9.1A				
R1959	1-216-065-00	RES,CHIP	4.7K	5%	1/10W		D908	8-719-923-60	DIODE MTZJ-T-77-9.1A				
R1960	1-216-113-00	RES,CHIP	470K	5%	1/10W		< FUSE >						
R1961	1-216-097-00	RES,CHIP	100K	5%	1/10W		F601   Δ   1-576-232-21   FUSE (H.B.C.)   5AMP 250V						
R1962	1-216-101-00	RES,CHIP	150K	5%	1/10W		< IC >						
R1963	1-216-081-00	RES,CHIP	22K	5%	1/10W		IC900	8-742-014-11	HYB IC SBX1981-51				
R1964	1-216-057-00	RES,CHIP	2.2K	5%	1/10W		< SOCKET >						
R1965	1-216-081-00	RES,CHIP	22K	5%	1/10W		J900	1-764-606-11	JACK				
R1966	1-216-081-00	RES,CHIP	22K	5%	1/10W		< COIL >						
R1967	1-215-876-00	METAL OXIDE	15K	5%	1W	F	L900	1-412-533-21	INDUCTOR	47UH			
R1968	1-249-416-11	CARBON	820	5%	1/4W		L901	1-412-533-21	INDUCTOR	47UH			
R1969	1-215-870-11	METAL OXIDE	1.5K	5%	1W	F	L902	1-408-603-31	INDUCTOR	10UH			
< TRANSFORMER >							L903	1-408-603-31	INDUCTOR	10UH			
T1901	1-424-584-11	TRANSFORMER, DYNAMIC FOCUS					< RESISTOR >						
*****							R900	1-247-807-31	CARBON	100	5%	1/4W	
*A-1646-157-A   H1 BOARD, COMPLETE							R901	1-249-426-11	CARBON	5.6K	5%	1/4W	
*****							R902	1-249-437-11	CARBON	47K	5%	1/4W	
< CAPACITOR >							R903	1-260-091-11	CARBON	220	5%	1/2W	
C902	1-137-372-11	FILM	0.022MF	5%	50V		R904	1-260-091-11	CARBON	220	5%	1/2W	
C903	1-137-372-11	FILM	0.022MF	5%	50V		R908	1-249-401-11	CARBON	47	5%	1/4W	
C904	1-104-665-11	ELECT	100MF	20%	25V		R909	1-247-895-91	CARBON	470K	5%	1/4W	
C905	1-126-964-11	ELECT	10MF	20%	50V		R910	1-247-895-91	CARBON	470K	5%	1/4W	
C907	1-126-960-11	ELECT	1MF	20%	50V		R911	1-535-465-11	LEAD, JUMPER (5.0MM)				
C908	1-126-960-11	ELECT	1MF	20%	50V		R912	1-249-422-11	CARBON	2.7K	5%	1/4W	
C911	1-102-074-00	CERAMIC	0.001MF	10%	50V		R913	1-249-429-11	CARBON	10K	5%	1/4W	
C912	1-102-074-00	CERAMIC	0.001MF	10%	50V		R914	1-247-863-91	CARBON	22K	5%	1/4W	
< CONNECTOR >							< SWITCH >						
CN603	Δ *1-580-844-11	PIN, CONNECTOR (POWER)					S601	Δ 1-571-433-21	SWITCH, PUSH (AC POWER)				
CN604	Δ *1-695-292-11	PIN, CONNECTOR (POWER)					S900	1-692-979-21	SWITCH, TACTILE				
CN900	*1-779-947-12	TERMINAL BLOCK S					S901	1-692-979-21	SWITCH, TACTILE				
CN906	*1-564-511-11	PLUG, CONNECTOR 8P					S902	1-692-979-21	SWITCH, TACTILE				
CN907	*1-564-510-11	PLUG, CONNECTOR 7P					*****						
CN908	*1-564-508-11	PLUG, CONNECTOR 5P											
< DIODE >													
D901	8-719-302-45	DIODE SEL1210S-D											
	*4-203-258-01	HOLDER, LED (D901)											

S1

REF.NO.	PART.NO	DESCRIPTION	REMARK	REF.NO.	PART.NO	DESCRIPTION	REMARK
	*A-1652-053-A	S1 BOARD, COMPLETE *****	(KV-29X5A/29X5D/ KV-29X5K/29X5R)	C1149	1-126-960-11	ELECT 1MF 20% 50V	
	*A-1652-056-A	S1 BOARD, COMPLETE *****	(KV-29X5B)	C1150	1-126-960-11	ELECT 1MF 20% 50V	
	*A-1652-052-A	S1 BOARD, COMPLETE *****	(KV-29X5E/29X5L/29X5U)	C1151	1-104-664-11	ELECT 47MF 20% 25V	
				C1152	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	
		< CAPACITOR >				< FILTER >	
				CF1101	1-409-327-00	TRAP, CERAMIC (6.5MHZ)	(KV-29X5B)
						< CONNECTOR >	
C1103	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V				
C1106	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V				
C1107	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	CN1101	1-766-925-11	CONNECTOR, BOARD TO BOARD 18P	
C1108	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V			< DIODE >	
C1109	1-104-664-11	ELECT 47MF	20% 25V				
				D1101	8-216-295-00	SHORT 0 (KV-29X5A/29X5D/29X5K/29X5R)	
C1112	1-163-001-11	CERAMIC CHIP 220PF	10% 50V		8-719-066-72	DIODE BB135 (KV-29X5B/29X5E/29X5L/29X5U)	
C1113	1-104-664-11	ELECT 47MF	20% 25V	D1102	8-719-991-33	DIODE 1SS133T-77	
C1114	1-163-001-11	CERAMIC CHIP 220PF	10% 50V			< FERRITE BEAD >	
C1115	1-104-664-11	ELECT 47MF	20% 25V				
C1118	1-162-637-11	CERAMIC CHIP 0.47MF	16V				
				FB1101	1-410-396-41	FERRITE 0.45UH	
C1120	1-164-005-11	CERAMIC CHIP 0.47MF	25V	FB1102	1-410-396-41	FERRITE 0.45UH	
C1122	1-104-664-11	ELECT 47MF	20% 25V	FB1103	1-410-396-41	FERRITE 0.45UH	
C1123	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	FB1104	1-410-396-41	FERRITE 0.45UH	
C1124	1-163-251-11	CERAMIC CHIP 100PF	5% 50V	FB1105	1-410-396-41	FERRITE 0.45UH	
C1126	1-126-960-11	ELECT 1MF	20% 50V				
				FB1110	1-412-002-31	INDUCTOR CHIP 4.7UH	
C1127	1-163-235-11	CERAMIC CHIP 22PF	5% 50V	FB1111	1-412-004-31	INDUCTOR CHIP 6.8UH	
		(KV-29X5A/29X5D/29X5K/29X5R)				(KV-29XA/29X5D/29X5K/29X5R)	
	1-163-239-11	CERAMIC CHIP 33PF	5% 50V		1-412-002-31	INDUCTOR CHIP 4.7UH	
		(KV-29X5B/29X5E/29X5L/29X5U)				(KV-29XB/29X5E/29X5L/29X5U)	
C1128	1-163-239-11	CERAMIC CHIP 33PF	5% 50V				
				FB1112	1-412-002-31	INDUCTOR CHIP 4.7UH	
C1129	1-163-989-11	CERAMIC CHIP 0.033MF	10% 25V	FB1113	1-412-002-31	INDUCTOR CHIP 4.7UH	(KV-29X5B)
		(KV-29X5B/29X5E/29X5L/29X5U)					
C1130	1-110-501-11	CERAMIC CHIP 0.33MF	10% 16V			< IC >	
		(KV-29X5B/29X5E/29X5L/29X5U)					
C1131	1-164-005-11	CERAMIC CHIP 0.47MF	25V	IC1101	8-759-522-62	IC TDA9870 (KV-29X5A/29X5D/29X5K/29X5R)	
		(KV-29X5A/29X5B/29X5D/29X5K/29X5R)			8-759-466-48	IC TDA9875P (KV-29X5B/29X5E/29X5L/29X5U)	
C1132	1-104-664-11	ELECT 47MF	20% 25V	IC1102	8-759-998-98	IC LM358D (KV-29X5A/29X5D/29X5K/29X5R)	
C1133	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V		8-759-100-96	IC UPC4558G2 (KV-29X5B/29X5E/29X5L/29X5U)	
C1135	1-163-117-00	CERAMIC CHIP 100PF	5% 50V			< COIL >	
			(KV-29X5B)				
C1137	1-104-664-11	ELECT 47MF	20% 25V	L1101	1-408-596-31	INDUCTOR 2.7UH	
			(KV-29X5B)			(KV-29XB/295XE/295XL/295XU)	
				L1113	1-408-600-31	INDUCTOR 5.6UH	(KV-29X5B)
C1138	1-163-109-00	CERAMIC CHIP 47PF	5% 50V	L1114	1-410-671-31	INDUCTOR 47UH	
			(KV-29X5B)	L1115	1-408-599-31	INDUCTOR 4.7UH	
C1143	1-163-005-11	CERAMIC CHIP 470PF	10% 50V				
C1144	1-163-005-11	CERAMIC CHIP 470PF	10% 50V	L1116	1-408-599-31	INDUCTOR 4.7UH	
C1145	1-163-077-00	CERAMIC CHIP 0.1MF	10% 25V	L1117	1-410-971-11	INDUCTOR 10UH	(KV-29X5B)
C1146	1-164-005-11	CERAMIC CHIP 0.47MF	25V				
C1147	1-164-005-11	CERAMIC CHIP 0.47MF	25V				
C1148	1-164-005-11	CERAMIC CHIP 0.47MF	25V				



S1

REF.NO.	PART.NO	DESCRIPTION	REMARK	REF.NO.	PART.NO	DESCRIPTION	REMARK
< TRANSISTOR >				R1164	1-216-073-00	RES,CHIP 10K 5% 1/10W (KV-29X5B/29X5E/29X5L/29X5U)	
Q1112	8-729-620-06	TRANSISTOR 2SC3052-EF	(KV-29X5B)	R1165	1-216-295-00	SHORT 0 (KV-29X5A/29X5D/29X5K/29X5R)	
Q1113	8-729-620-06	TRANSISTOR 2SC3052-EF	(KV-29X5B)	R1167	1-216-025-00	RES,CHIP 100 5% 1/10W (KV-295XB)	
Q1114	8-729-216-22	TRANSISTOR 2SA1162-G	(KV-29X5B)	R1168	1-216-033-00	RES,CHIP 220 5% 1/10W (KV-29X5B)	
Q1115	8-729-620-06	TRANSISTOR 2SC3052-EF	(KV-29X5B)	R1169	1-216-049-00	RES,CHIP 1K 5% 1/10W (KV-29X5B)	
< RESISTOR >				R1170	1-216-001-00	RES,CHIP 10 5% 1/10W (KV-295XB)	
JR1105	1-216-295-00	SHORT 0		R1171	1-216-045-00	RES,CHIP 680 5% 1/10W (KV-29X5B)	
R1101	1-216-073-00	RES,CHIP 10K 5% 1/10W		R1172	1-216-190-00	RES,CHIP 470 5% 1/8W (KV-295XB)	
R1102	1-216-073-00	RES,CHIP 10K 5% 1/10W		R1173	1-216-049-00	RES,CHIP 1K 5% 1/10W (KV-295XB)	
R1103	1-216-035-00	RES,CHIP 270 5% 1/10W		R1174	1-216-085-00	RES,CHIP 33K 5% 1/10W	
R1105	1-216-035-00	RES,CHIP 270 5% 1/10W		R1175	1-216-085-00	RES,CHIP 33K 5% 1/10W	
R1108	1-216-057-00	RES,CHIP 2.2K 5% 1/10W (KV-29X5A/29X5B/29X5D/29X5K/29X5R)		R1176	1-216-085-00	RES,CHIP 33K 5% 1/10W	
R1110	1-216-025-00	RES,CHIP 100 5% 1/10W		R1177	1-216-085-00	RES,CHIP 33K 5% 1/10W	
R1111	1-216-025-00	RES,CHIP 100 5% 1/10W		< CRYSTAL >			
R1113	1-216-073-00	RES,CHIP 10K 5% 1/10W		X1101	1-767-813-21	VIBRATOR, CRYSTAL	
R1116	1-216-295-00	SHORT 0 (KV-29X5A/29X5D/29X5K/29X5R)		*****			
	1-216-689-11	METAL CHIP 39K 0.50% 1/10W (KV-29X5B/29X5E/29X5L/29X5U)					
R1117	1-216-073-00	RES,CHIP 10K 5% 1/10W (KV-29X5B/29X5E/29X5L/29X5U)					
R1118	1-216-682-11	METAL CHIP 20K 0.50% 1/10W (KV-29X5B/29X5E/29X5L/29X5U)					
R1121	1-216-065-00	RES,CHIP 4.7K 5% 1/10W (KV-29X5A/29X5D/29X5K/29X5R)					
	1-216-073-00	RES,CHIP 10K 5% 1/10W (KV-29X5B/29X5E/29X5L/29X5U)					
R1122	1-216-073-00	RES,CHIP 4.7K 5% 1/10W (KV-29X5A/29X5D/29X5K/29X5R)					
	1-216-073-00	RES,CHIP 10K 5% 1/10W (KV-29X5B/29X5E/29X5L/29X5U)					
R1123	1-216-065-71	RES,CHIP 47K 5% 1/10W					
R1124	1-216-073-71	RES,CHIP 10K 5% 1/10W					
R1125	1-216-065-71	RES,CHIP 47K 5% 1/10W					
R1126	1-216-073-71	RES,CHIP 10K 5% 1/10W					
R1130	1-216-073-00	RES,CHIP 10K 5% 1/10W (KV-29X5A/29X5D/29X5K/29X5R)					
R1134	1-216-073-00	RES,CHIP 10K 5% 1/10W (KV-29X5A/29X5D/29X5K/29X5R)					
R1152	1-216-035-00	RES,CHIP 270 5% 1/10W (KV-29X5B)					
R1153	1-216-025-00	RES,CHIP 100 5% 1/10W (KV-29X5B)					
R1154	1-216-067-00	RES,CHIP 5.6K 5% 1/10W (KV-29X5B)					
R1160	1-216-230-00	RES,CHIP 22K 5% 1/8W (KV-29X5B)					
R1161	1-216-190-00	RES,CHIP 470 5% 1/8W (KV-29X5B)					
R1162	1-216-061-00	RES,CHIP 3.3K 5% 1/10W (KV-29X5B)					
R1163	1-216-230-00	RES,CHIP 22K 5% 1/8W (KV-29X5B)					

The components identified by shading and marked  $\Delta$  are critical for safety  
Replace only with the part number specified.

REF. NO.	PART.NO	DESCRIPTION	REMARK	REF. NO.	PART.NO	DESCRIPTION	REMARK
MISCELLANEOUS *****				REMOTE COMMANDER *****			
$\Delta$	1-406-807-11	COIL, DEMAGNETIZATION		1-475-765-11	COMMANDER STANDARD TYPE (RM 883)		
	1-452-032-00	MAGNET, DISC; 10MM Ø		*****			
	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM Ø					
$\Delta$	8-453-005-21	NECK ASSY (NA297-M2)					
$\Delta$	1-453-265-11	TRANSFORMER ASSY, FLYBACK	(NX-1681/U2B4)				
	1-503-902-11	SPEAKER (15X6.5CM)					
$\Delta$	1-251-317-31	CAP ASSY, HIGH-VOLTAGE					
$\Delta$	1-652-433-21	SWITCH, PUSH (AC POWER)					
$\Delta$	1-756-286-11	CORD, POWER					
		(KV-29X5A/29X5B/29X5D/29X5E/29X5K/29X5R)					
$\Delta$	1-776-204-11	CORD, POWER (FILTER)	(KV-29X5L/29X5U)				
	1-693-418-11	TUNER (TELE9-001A)	(KV-29X5A/29X5B/29X5D/ KV-29X5E/29X5L)				
	8-598-432-01	TUNER (BTP-AC411)	(KV-29X5K)				
	8-598-361-01	TUNER (BTP-AC402)	(KV-29X5R)				
	8-598-360-01	TUNER (BTP-AU602)	(KV-29X5U)				
$\Delta$	8-733-856-05	PICTURE TUBE (SD-269) (M68LCT60X)					
$\Delta$	8-451-467-12	DEFLECTION YOKE (Y29GXA2B)					
*****							
ACCESSORIES AND PACKING MATERIALS *****							
	4-042-476-01	BAG, PROTECTION					
	4-204-027-01	INDIVIDUAL CARTON					
	4-204-028-01	CUSHION (UPPER) (ASSY)					
	4-204-029-01	CUSHION (LOWER) (ASSY)					
	4-204-043-41	MANUAL, INSTRUCTION (KV-29X5A)					
		(ITALIAN)					
	4-204-043-51	MANUAL, INSTRUCTION (KV-29X5B)					
		(FRENCH/GERMAN/ITALIAN/DUTCH)					
	4-204-074-11	MANUAL, INSTRUCTION (KV-29X5D)					
		(GERMAN/GREEK/DUTCH/ENGLISH/TURKISH)					
	4-204-043-71	MANUAL, INSTRUCTION (KV-29X5E)					
		(SPANISH)					
	4-204-043-81	MANUAL, INSTRUCTION (KV-29X5E)					
		(FINNISH/NORWEGIAN/HUNGARIAN/ PORTUGUESE/DANISH/SWEDISH)					
	4-204-074-61	MANUAL, INSTRUCTION (KV-29X5L/29X5U)					
		(ENGLISH)					
	4-204-043-91	MANUAL, INSTRUCTION (KV-29X5K)					
		(CZECH/ENGLISH/POLISH/HUNGARIAN)					
	4-204-074-91	MANUAL, INSTRUCTION (KV29X5R)					
		(RUSSIAN/BULGARIAN/ENGLISH)					





**S1 BOARD IC VOLTAGE TABLE**

IC Voltage Table		
Ref No	Pin No	Voltage (V)
IC1101	4	3.4
	5	3.2
	7	4.8
	8	2.3
	9	4.8
	10 - 12	2.3
	13	4.8
	15	4.8
	16	4.8
	17	2.6
	18	3.5
	19	4.0
	33 - 34	2.4
	36 - 37	2.4
	38 - 39	4.8
	41 - 42	2.4
	44 - 48	2.4
	53 - 55	2.4
	59	4.8
	60 - 61	2.4
	64	4.8
IC1102	1	4.5
	2	4.1
	3	4.5
	6	4.3
	7	3.5
	8	9.0

**A BOARD TRANSISTOR VOLTAGE TABLE**

Transistor Voltage Table			
Ref No	(B) Base	(C) Collector	(E) Emitter
Q004	4.7	0.7	4.9
Q005	0.3	4.8	-
Q006	-	2.0	-
Q007	-	4.9	-
Q008	-	4.9	-
Q009	-	4.9	-
Q010	0.6	-	-
Q011	0.5	-	-
Q012	-	4.8	-
Q101	2.0	-	2.6
Q109	-	4.7	-
Q110	4.3	-	-
Q111	2.3	2.9	2.9
Q112	2.9	-	-
Q202	0.6	-	-
Q401	8.0	3.4	8.6
Q405	4.4	8.8	3.7
Q408	2.6	8.0	2.0
Q532	7.3	3.1	-
Q533	-0.2	-152.0	-
Q535	-0.7	92.0	-
Q571	134.2	-	134.4
Q574	-	2.0	-
Q576	3.4	6.7	2.8
Q601	4.0	3.6	4.8

**VM BOARD IC VOLTAGE TABLE**

IC Voltage Table		
Ref No	Pin No	Voltage (V)
IC1801	1 - 3	5.0
	5 - 6	4.3
	7	3.7
	8	8.0
	9	4.8
IC1901	1	1.7
	2	4.0
	3	4.5
	5	6.7
	6	6.8
	7	3.6
	8	8.0
	1 - 3	2.8
IC1902	5 - 6	5.2
	7	5.0
	8	8.0

**VM BOARD TRANSISTOR VOLTAGE TABLE**

Transistor Voltage Table			
Ref No	(B) Base	(C) Collector	(E) Emitter
Q1701	2.4	8.7	1.8
Q1702	2.4	6.5	1.8
Q1703	133.4	52.0	133.8
Q1704	8.7	8.5	5.8
Q1706	0.8	52.0	0.5
Q1708	5.0	2.1	5.6
Q1709	5.4	8.0	4.7
Q1710	5.6	8.0	5.0
Q1840	-0.3	4.7	-
Q1901	0.4	1.3	-
Q1902	0.4	0.3	-
Q1903	0.3	62.0	-
Q1904	-	8.0	0.1
Q1905	2.7	6.5	2.2
Q1906	4.0	68.8	3.4
Q1907	68.7	122.2	68.2
	Gate	Drain	Source
Q1841	4.7	18.0	-

**S1 BOARD TRANSISTOR VOLTAGE TABLE**

Transistor Voltage Table			
Ref No	(B) Base	(C) Collector	(E) Emitter
Q1111	2.0	4.1	1.3
Q1112	1.5	3.5	0.9
Q1113	1.9	4.1	1.3
Q1114	3.5	3.3	4.1
Q1115	3.3	4.1	2.7

**C BOARD TRANSISTOR VOLTAGE TABLE**

Transistor Voltage Table			
Ref No	(B) Base	(C) Collector	(E) Emitter
Q702	1.5	8.3	1.1
Q703	8.8	169.8	8.3
Q704	169.5	1.9	209.5
Q705	1.5	8.3	1.1
Q706	8.8	170.7	8.3
Q707	170.5	1.9	215.7
Q708	1.5	8.3	1.0
Q709	8.9	171.3	8.3
Q710	171.2	1.9	206.3

## A BOARD IC VOLTAGE TABLE

IC Voltage Table								
Ref No	Pin No	Voltage (V)	Ref No	Pin No	Voltage (V)	Ref No	Pin No	Voltage (V)
IC001	4	0.8	IC101	1 - 2	3.2	IC301	34 - 35	3.3
	6	3.2		3	4.8		41	5.0
	7 - 8	4.8		4	3.0		42	8.6
	9	0.3		5	2.8		43	5.0
	10	2.0		6	2.7		44	8.8
	11	1.5		7	3.9		45	5.2
	12	4.7		8	2.2		48	1.5
	19	3.6		12	2.0	IC201	1	15.3
	20	4.3		15	1.5		5	15.3
	21	4.8		17	0.3		7	15.3
	24	2.5		18 - 19	2.6		10	4.5
	25	2.1		21	4.7		12	15.3
	26	2.4		22	0.9		13	31.2
	30	4.8		23 - 24	3.2		14	15.3
	31	5.0	IC301	1	3.3	IC501	1	1.4
	36	0.2		2	5.0		2	14.0
	37	0.1		3	4.3		3	-13.0
	38 - 39	5.0		4	5.0		4	-14.0
	41 - 42	2.2		6	4.4		5	0.2
	44	4.8		8	4.5		6	14.5
	45	2.8		11	3.9	IC531	7	1.4
	47	0.1		12	2.4		1	1.6
	48	2.4		13	3.5		2	1.7
	49	3.3		14	3.4		3	1.9
	50	3.1		15	5.6		5	2.8
	51	0.1		16	7.6		6	2.0
IC004	5 - 6	4.8		18	1.3	IC606	7	7.3
	7	3.3		19	2.4		8	8.8
	8	3.2		20	3.8		1 - 2	-60.0
IC005	9	3.2		21	1.6	IC609	4	-51.3
	10	4.7		22 - 24	1.5		4	-58.0
	12	4.7		26 - 28	4.5			
	13	1.5		30	4.5			
	14	4.7		31 - 32	4.4			
	16	4.7		33	8.1			

## A BOARD \* MARK

Ref	29X5A	29X5B	29X5D	29X5E	29X5K	29X5L	29X5R	29X5U
C111	0	0-1UF	0	0	0	0	0	0
C133	-	1UF	-	-	-	-	-	-
C414	1UF	0.001UF	1UF	1UF	0.001UF	1UF	1UF	1UF
C579	-	LEAD JUMPER (5.0MM)	-	-	LEAD JUMPER (5.0MM)	-	-	LEAD JUMPER (5.0MM)
C606	330UF	330UF	330UF	330UF	-	330UF	330UF	330UF
CF105	-	TRAP CERAMIC	-	-	-	-	-	TRAP CERAMIC
D541	LEAD JUMPER	-	LEAD JUMPER	LEAD JUMPER	-	LEAD JUMPER	LEAD JUMPER	-
IC001	SAA5497PS/ MIA/040	SAA5497PS/ MIA/038	SAA5497PS/ MIA/040	SAA5497PS/ MIA/038	SAA5497PS/MIA/ 038	SAA5497PS/MIA/ 038	SAA5497PS/ MIA/039	SAA5497PS/ MIA/038
IC101	TDA9817/V	TDA9818/V1	TDA9817/V	TDA9817/V	TDA9817/V1	TDA9817/V1	TDA9817/V	TDA9817/V
JR012	0	-	0	0	0	0	0	0
JW128	47K	LEAD JUMPER (5.0MM)	47K	LEAD JUMPER (5.0MM)	47K	47K	LEAD JUMPER (5.0MM)	LEAD JUMPER (5.0MM)
Q110	-	DTC144EK-T146	-	-	-	-	-	-
RO63	-	4.7K	-	-	-	-	-	-
RO64	-	4.7K	-	-	-	-	-	-
R112	-	2.2K	-	-	-	-	-	-
R116	47K	-	47K	47K	47K	47K	-	-
R133	0	-	0	0	0	0	0	0
R149	-	1K	-	-	-	-	-	-
R417	75	75	75	75	75	75	75	68
R418	470 ½W	470 ½W	470 ½W	470 ½W	470 ½W	470 ½W	470 ½W	470 ½W
RV101	-	22K	-	-	-	-	-	-
SWF101	1-767-874-11	1-579-273-11	1-767-874-11	1-767-874-11	1-767-874-11	1-579-273-11	1-767-874-11	1-767-874-11
SWF103	-	FILTER, SURFACE WAVE	-	-	-	-	-	-
TU101	TELE9-001A	TELE9-001A	TELE9-001A	TELE9-001A	BTP-AC411	TELE9-001A	BTP-AC402	BTP-AU602

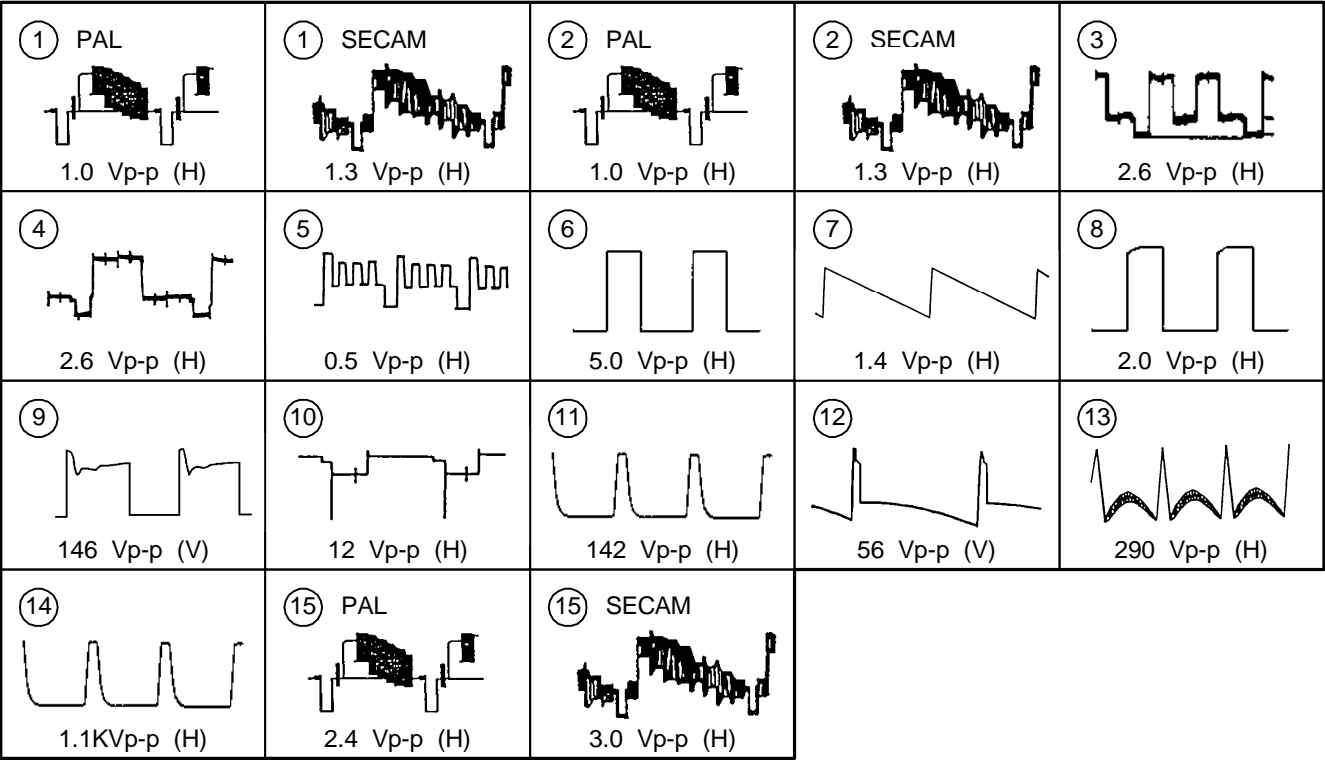
## S1 BOARD \* MARK

Ref	29X5A	29X5B	29X5D	29X5E	29X5K	29X5L	29X5R	29X5U
C1127	22PF	33PF	22PF	33PF	22PF	33PF	22PF	33PF
C1129	-	0.033UF	-	0.033UF	-	0.033UF	-	0.33UF
C1130	-	0.33UF	-	0.33UF	-	0.33UF	-	0.33UF
C1131	0.47UF	0.47UF	0.47UF	-	0.47UF	-	0.47UF	-
D1101	0	BB135	0	BB135	0	BB135	0	BB135
FB1111	6.8UH	4.7UH	6.8UH	4.7UH	6.8UH	4.7UH	6.8UH	4.7UH
FB1113	-	4.7UH	-	-	-	-	-	-
IC1101	TDA9870	TDA9875P	TDA9870	TDA9875P	TDA9870	TDA9875P	TDA9870	TDA9875P
IC1102	LM358DR-E2	NJM4558M-TE2	LM358DR-E2	NJM4558M-TE2	LM358DR-E2	NJM4558M-TE2	LM358DR-E2	NJM4558M-TE2
L1101	-	2.7UH	-	2.7UH	-	2.7UH	-	2.7UH
L1113	-	5.6UH	-	-	-	-	-	-
L1117	-	10UH	-	-	-	-	-	-
R1108	2.2K	2.2K	2.2K	-	2.2K	-	2.2K	-
R1116	0	39K	0	39K	0	39K	0	39K
R1117	-	10K	-	10K	-	10K	-	10K
R1118	-	20K	-	20K	-	20K	-	20K
R1121	4.7K	10K	4.7K	10K	4.7K	10K	4.7K	10K
R112	4.7K	10K	4.7K	10K	4.7K	10K	4.7K	10K
R1130	10K	-	10K	-	10K	-	10K	-
R1134	10K	-	10K	-	10K	-	10K	-
R1164	-	10K	-	10K	-	10K	-	10K
R1165	0	-	0	-	0	-	0	-

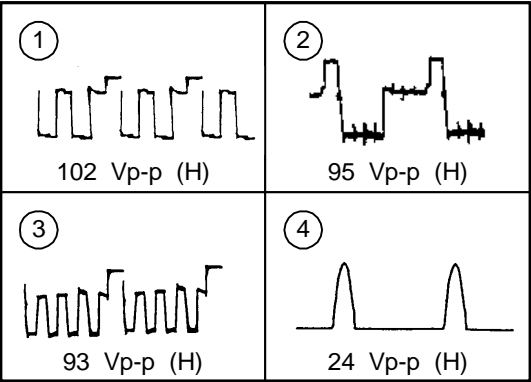
IC		DIODE		D534	D - 3
IC001	C - 11	D001	D - 8	D535	F - 4
IC003	D - 10	D002	D - 8	D536	F - 2
IC004	D - 9	D004	D - 10	D538	F - 4
IC005	B - 11	D005	D - 8	D539	F - 2
IC101	A - 4	D007	D - D9	D571	F - 5
IC201	B - 7	D008	D - 7	D601	G - 8
IC301	D - 6	D009	C - 11	D602	I - 6
IC501	I - 4	D010	D - 10	D603	H - 6
IC531	C - 4	D011	E - 12	D605	G - 6
IC603	F - 6	D012	D - 11	D608	H - 8
IC604	E - 6	D014	D - 11	D610	F - 7
IC605	C - 8	D15	D - 11	D613	E - 9
IC606	I - 7	D017	E - 10	D614	G - 6
IC608	D - 12	D018	D - 7	D619	I - 8
IC609	E - 11	D023	E - 10	D621	F - 10
TRANSISTOR		D101	B - 2	D626	F - 9
Q004	B - 9	D104	A - 3	D627	F - 9
Q005	C - 10	D201	C - 8	D628	E - 10
Q006	B - 9	D202	C - 8	D629	E - 11
Q007	D - 10	D204	C - 9	D631	F - 11
Q008	D - 11	D205	B - 8	D632	E - 10
Q009	D - 11	D206	B - 7	D633	E - 9
Q010	D - 10	D306	C - 6	D535	F - 4
Q011	D - 8	D307	C - 6	D536	F - 2
Q202	C - 8	D308	E - 5	D538	F - 4
Q401	B - 2	D309	E - 5	D539	F - 2
Q405	B - 2	D405	C - 1		
Q408	B - 2	D406	C - 2		
Q501	I - 5	D407	D - 2		
Q532	E - 2	D409	B - 1		
Q533	F - 1	D415	D - 2		
Q535	D - 1	D417	D - 2		
Q571	F5	D422	C - 1		
Q574	E - 5	D423	C - 1		
Q575	E - 6	D427	B - 2		
Q576	E - 6	D501	I - 4		
Q202	C - 8	D502	H - 4		
Q401	B - 2	D501	I - 4		
Q405	B - 2	D502	H - 4		
Q408	B - 2	D511	G - 3		
Q501	I - 5	D512	H - 3		
Q532	E - 2	D513	I - 3		
Q533	F - 1	D514	I - 3		

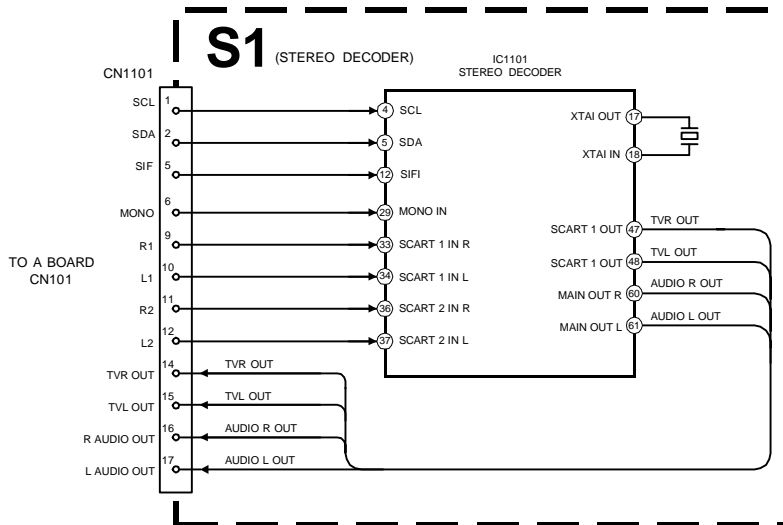
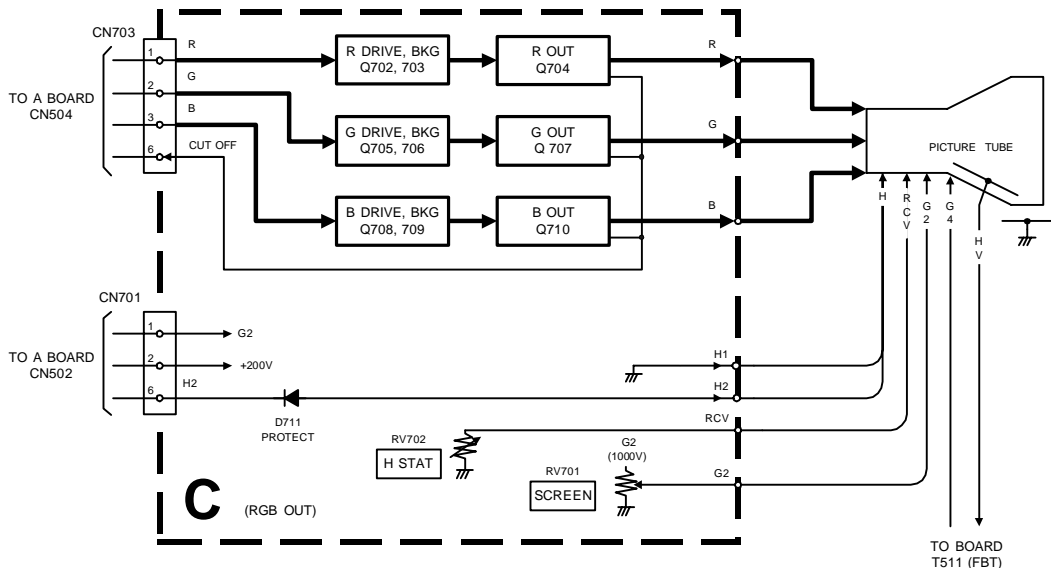


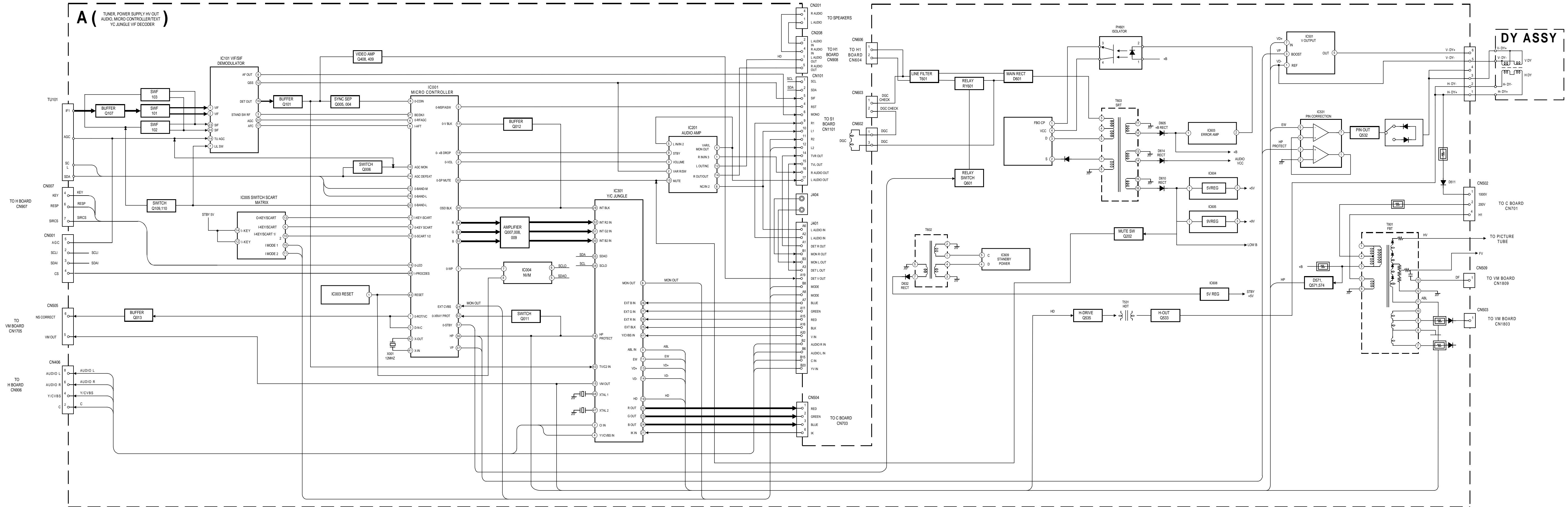
WAVEFORMS A BOARD



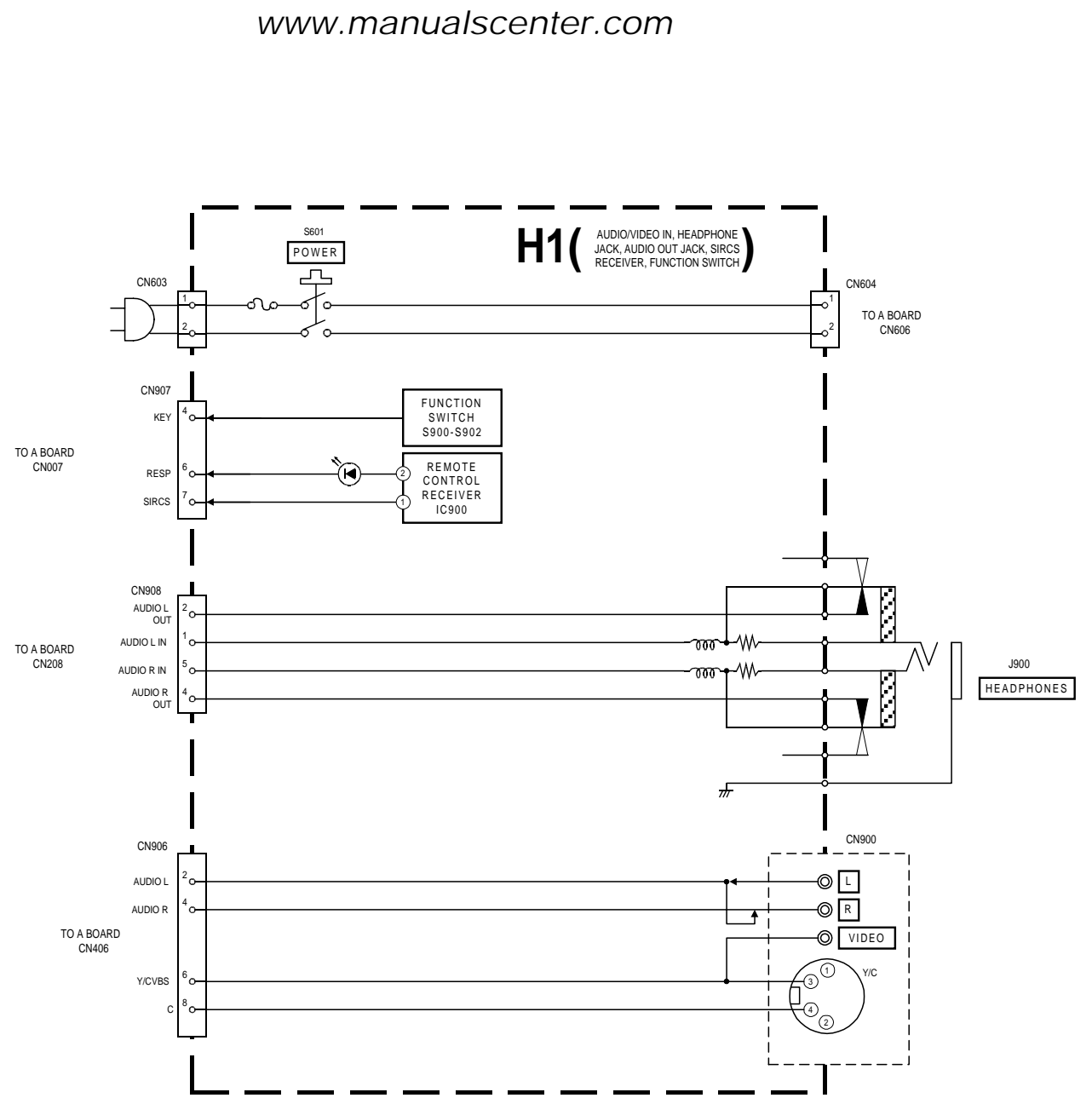
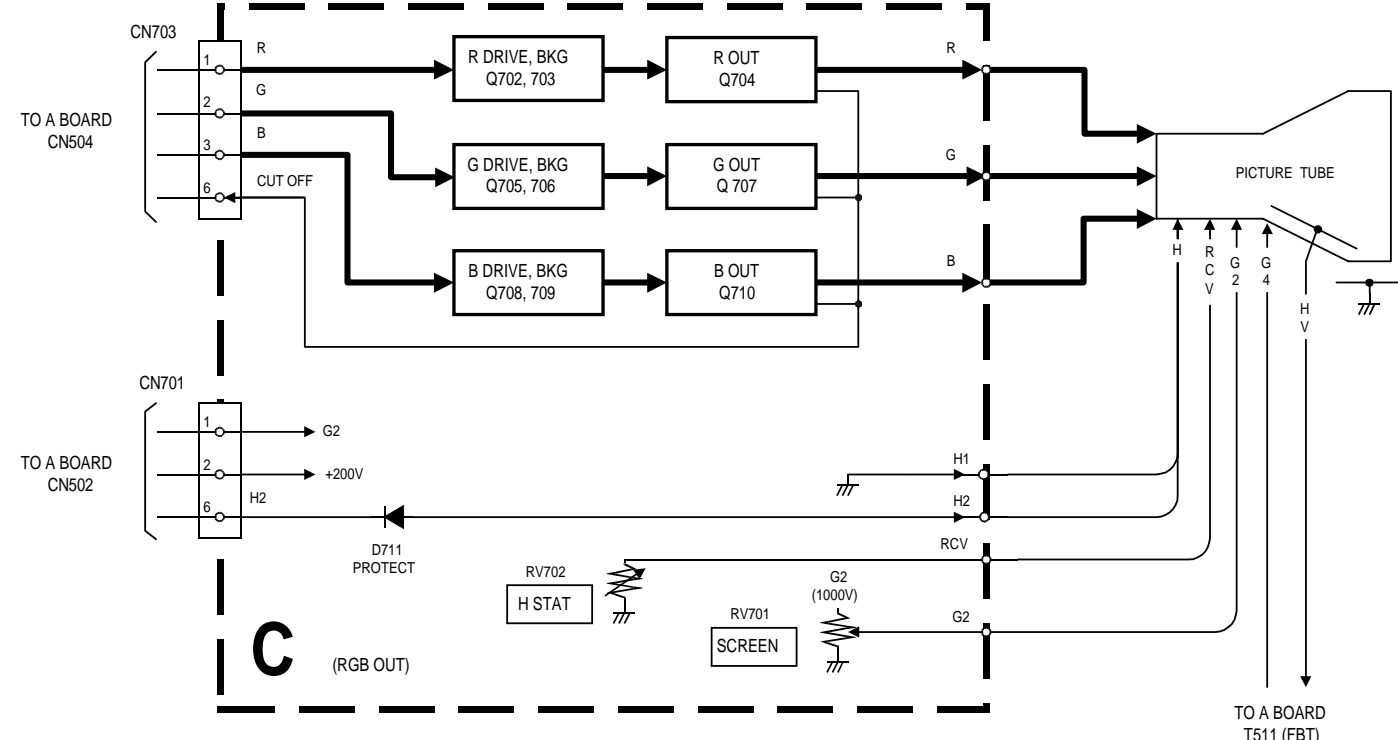
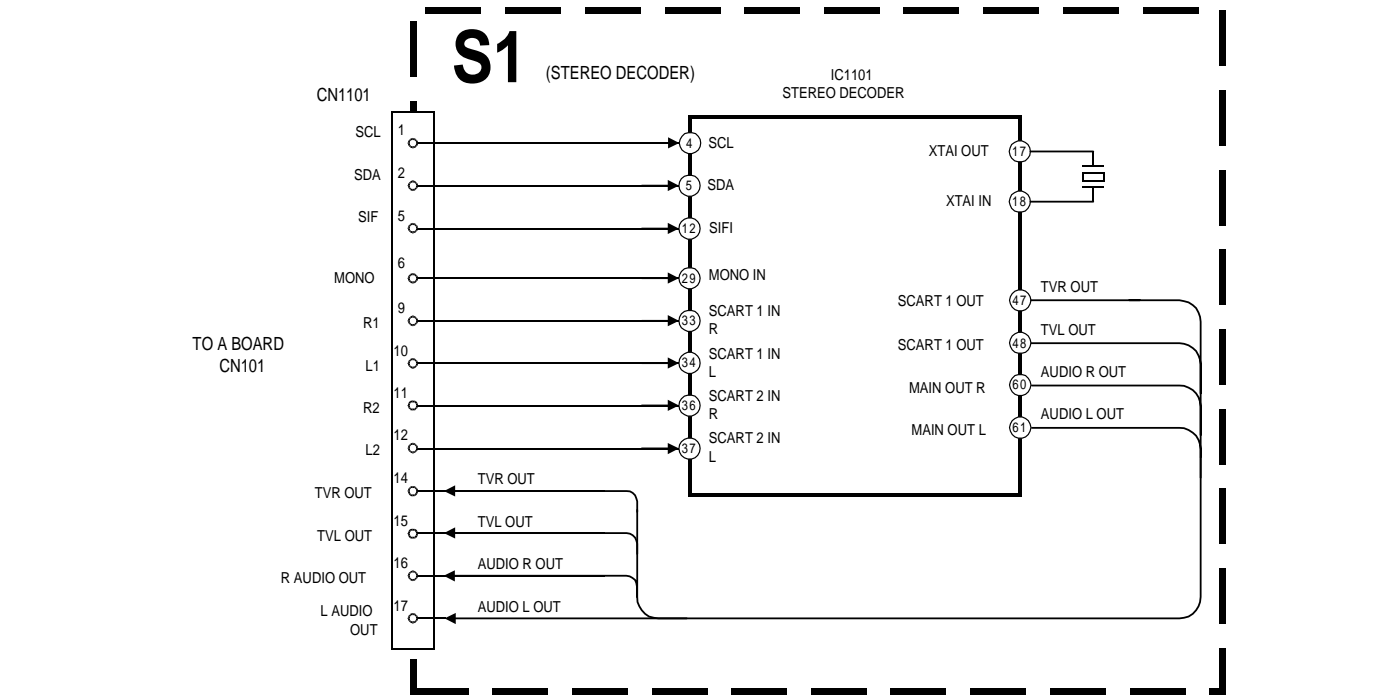
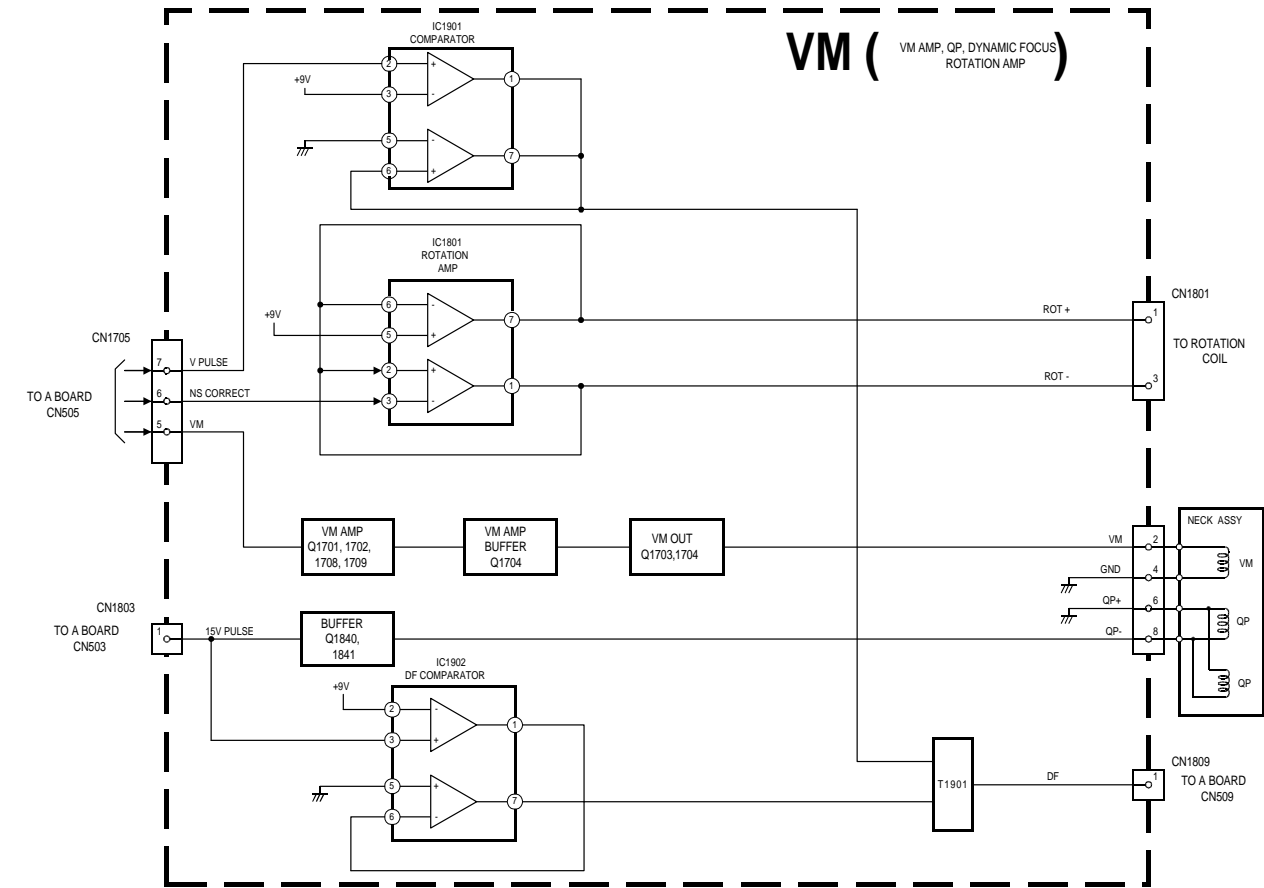
WAVEFORMS C BOARD



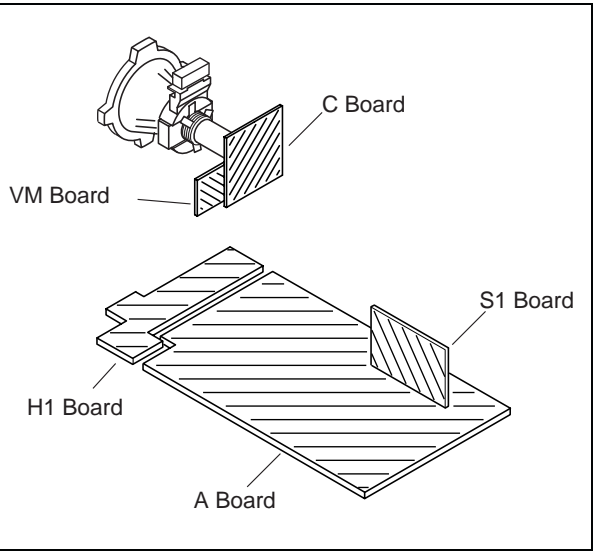




5-1 BLOCK DIAGRAMS (2)



5-2. CIRCUIT BOARD LOCATION



5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

- Note :**
- All capacitors are in  $\mu\text{F}$  unless otherwise noted.
  - pF :  $\mu\text{F}$  50WV or less are not indicated except for electrolytic types.
  - Indication of resistance, which does not have one for rating electrical power, is as follows.
- Pitch : 5mm  
Electrical power rating : 1/4W
- Chip resistors are 1/10W
  - All resistors are in ohms.  
k = 1000 ohms, M = 1000,000 ohms
- : nonflammable resistor.
  - : fusible resistor.
  - : internal component.
  - : panel designation or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
  - All voltages are in Volts.
  - Readings are taken with a 10Mohm digital multimeter.
  - Readings are taken with a color bar input signal.
  - Voltage variations may be noted due to normal production tolerances.
- : B + bus.
  - : B - bus.
  - : RF signal path.
  - : earth - ground.
  - : earth - chassis.

Reference Information

RESISTOR	RN	: METAL FILM
	RC	: SOLID
	FPRD	: NON FLAMMABLE CARBON
	FUSE	: NON FLAMMABLE FUSIBLE
	RS	: NON FLAMMABLE METAL OXIDE
	RB	: NON FLAMMABLE CEMENT
	RW	: NON FLAMMABLE WIREWOUND
		: ADJUSTMENT RESISTOR
COIL	LF-8L	: MICRO INDUCTOR
CAPACITOR	TA	: TANTALUM
	PS	: STYROL
	PP	: POLYPROPYLENE
	PT	: MYLAR
	MPS	: METALIZED POLYESTER
	MPP	: METALIZED POLYPROPYLENE
	ALB	: BIPOLAR
	ALT	: HIGH TEMPERATURE
	ALR	: HIGH RIPPLE

**Note:** The components identified by shading and marked  $\Delta$  are critical for safety. Replace only with the part numbers specified in the parts list.

**Note:** Les composants identifiés par une trame et par une marque  $\Delta$  sont d'une importance critique pour la sécurité. Ne les remplacer que par des pièces de numéro spécifié.

